

AMERICAN ARTISAN and Hardware Record

Vol. 82. No. 21.

620 SOUTH MICHIGAN AVENUE, CHICAGO, NOVEMBER 19, 1921.

\$2.00 Per Year.



VAUGHAN'S EXPANSION WEDGE

(Patent Applied for)

Ordinary wedges work loose and cannot be reset. With Vaughan's Expansion Wedge if the handle shows any tendency to become loose all the user has to do is set the tapered wedge (b) a notch or two deeper between the pins (a) and a tight handle is assured. It took 900 lbs more pressure to pull the handle through the head with Vaughan's Expansion Wedge than with the ordinary wedge.

This wedge is used only in Vaughan's Uncle Sam Brand of hammers.



No More Loose Handles

YOUR customers are going to prefer this hammer with Vaughan's Expansion Wedge. You're bound to have increased hammer sales and perfectly satisfied customers.

Uncle Sam Hammers are made in all sizes of Plain and Bell face Nail and Ripping Hammers, Ball Pein Hammers and Blacksmiths' or Engineers' Hammers.



No. 41-20 oz.; 41½-16 oz.; 42-13 oz.; 42½-10 oz.

UNCLE SAM HAMMERS

are the only hammers sold that have the **UNDERWRITERS' LABORATORIES** label as an inspected tool.

They are made in two finishes—polished with white Hickory Handle and Black finish with Walnut Stained Hickory Handle.

Write for booklet No. 10, describing in detail Uncle Sam Hammers and the tests made by the Underwriters Laboratories.

Complete catalog on request.

VAUGHAN & BUSHNELL MFG. CO.



2114 Carroll Avenue

Chicago, Illinois

These Good Oil Stoves Are in Demand Now

and from all sections of the country we receive indications of a big year for these extra high grade Dangler Wick Oil Stoves.

The Dangler line is complete — a model for each requirement. They are neat, durable and efficient in all details of construction.

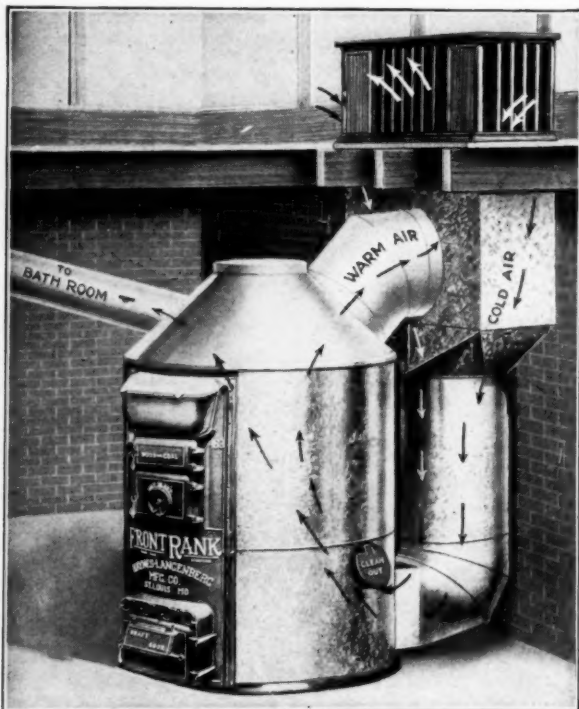
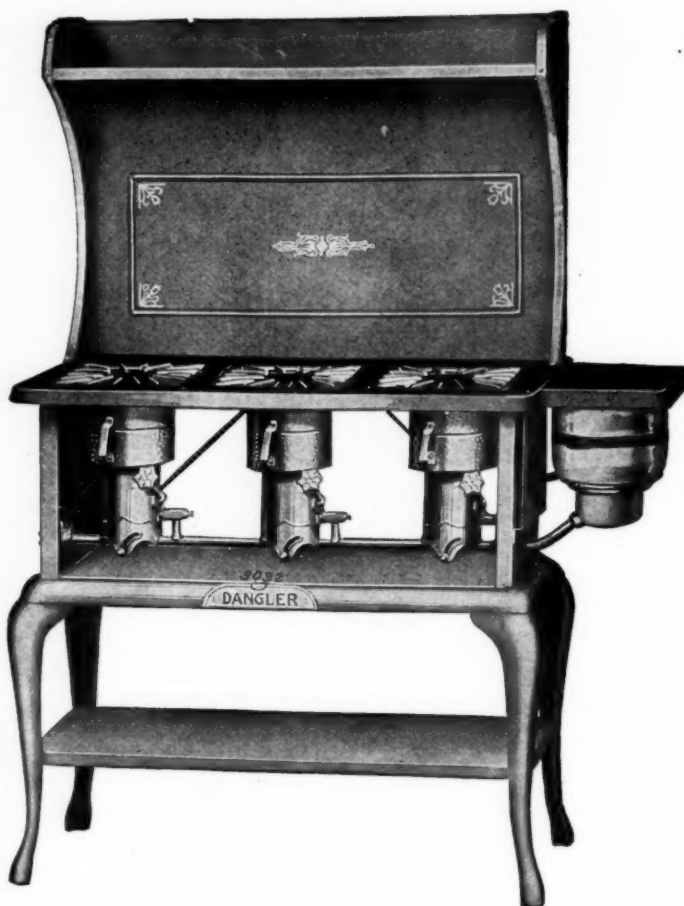
DANGLER Wick Oil Stoves

are equipped with a glass tank indicator—the best device for this purpose put on any oil stove.

You can put Dangler Wick Oil Stoves on your floor *now* — they'll sell — and give you a good profit. Our prices are causing dealers to buy now — write today for full details and catalog showing entire line.

DANGLER STOVE CO.

Div. American Stove Co.
CLEVELAND, OHIO



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TRADE NAME REGISTERED

COMBINATION OF BEAUTY AND UTILITY

Furnacemen will find this combination simple and easy to sell and install, as well as a most efficient heater, very pleasing to the owner.

WRITE TODAY

If desired, we will gladly plan every installation for you.

[HAYNES-LANGENBERG MFG. CO.]
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BY
DANIEL STERN
Thoroughly Covers
The Hardware, Stove,
Sheet Metal, and Warm
Air Heating and Venti-
lating Interests

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MAKE IT OF SHEET METAL!

The Jobbers' and Travelers' Auxiliary of the Indiana Sheet Metal Contractors' Association has adopted the slogan "Make it of Sheet Metal," and it appears on the lapel button which is worn by every member of that very helpful and progressive organization of boosters for the sheet metal trade.

It would be a fine thing if every sheet metal contractor and every hardware merchant would post this slogan somewhere in his office where it would greet him every morning when he arrived at his place of business, so that the sentiment would sink in and finally become so strong, for example, that the hardware dealer would under no circumstances suggest that a customer of his purchase wood shingles for the roof of his new house, but would advise the use of zinc "tiles" or plain flat zinc shingles.

There is no question as to the superiority of any properly made and laid sheet metal roof over any other kind of roofing material.

It has been proven too often to really require any more than mention of the fact that metal roofs, under the worst climatic conditions, will stand up against the action of the weather, deteriorating chemicals in the atmosphere, fire, etc., far better than other roofing material, so that no matter if the primary cost may be a little higher, within the space of five or ten years, not only this difference has been wiped out, but there is a considerable sum to the credit of the metal roof, because of greater lasting qualities, less cost of maintenance, etc.

What has been said about zinc in the foregoing applies with equal force to any other metal.

The manufacturers of wooden shingles as well as those who make composition roofing

have spent thousands of dollars to educate the dealers and the public to believe in their products, and it is significant that there was fully as much effort put forth to interest and educate the lumber dealers as there was to make the house owner see their point.

American Artisan and Hardware Record is convinced that if the matter is put before the sheet metal contractor and the hardware merchant in the right way, these good business men will see the wisdom of preaching the gospel of "Make it of Sheet Metal."

And the work can not be begun too soon.

However, this does not mean that a sheet metal contractor should refuse to lay a composition roof if he has no other choice.

It does mean that whenever a new house is being planned the sheet metal contractor and the hardware merchant should work together to "put over" a sheet metal roof—

Not only because there will be more money in it for them, but also because the house owner will have reason to thank them for giving him the best possible roof.

With the great activity in building construction, particularly of homes, which is already beginning to manifest itself, the manufacturers and distributors of sheet metals, suitable for roofing purposes, should make a united effort to insure the adoption of sheet metal rather than any of the other, inferior materials.

This is also a splendid time for the specialty manufacturers to co-operate with this campaign. The makers of copper, zinc, tin, lead and galvanized gutters, spouts, cornices, ridge rolls, etc., have the greatest opportunity before them right now to induce the greater use of sheet metals for building.

"Make it of Sheet Metal."

Random Notes and Sketches

By Sidney Arnold

There are numerous reasons for praying for rain. Here is one supplied by Tom Pearson of Central Heating Supply Company, Chicago, Illinois:

Alice—"Why don't you wear your new silk stockings?"

Virginia—"I'm saving them for a rainy day."

* * *

The annoyances to which motorists are subjected by small town regulations are typified in the following story by Joe Goldberg, sales representative of Excelsior Steel Furnace Company, Chicago, Illinois:

The Bingville board of selectmen had held many sessions and finally formulated a set of auto laws that was the pride of the county. So the constable felt no worriment when he stopped a motorist.

"Ye're pinched for violatin' the auto laws," he pronounced.

"Which one?" inquired the traveler.

"Durned if I know, but ye certainly hain't come all the way down Main Street without bustin' one of them."

* * *

A big percentage of customers want the best merchandise, says W. (Wally) T. Strangward, general manager Forest City Foundry Company, Cleveland, Ohio. He gives this example:

Rastus Washington called at the drug store the other day.

"Boss," he said, "I wants one ob dem plasters you done stick on yoah back."

"I understand," said the clerk, "you mean one of our porous plasters."

"No, sah," he replied positively. "I don't want none of yoah poorst plasters—I wants the best one you got!"

* * *

J. F. James, president Mascot Stove Company, Chattanooga, Tennessee, sends me this jolly clipping:

"Oh, my," she exclaimed, impatiently, "we'll be sure to miss the first act. We've been waiting a good many minutes for that mother of mine."

"Hours, I should say," he replied.

"Ours," she cried joyfully. "Oh, Jack, what a neat way to propose."

* * *

In advertising it is of first importance to make one's meaning clear and to avoid anything which might be misunderstood, says T. A. Carroll, publicity director of E. C. Atkins & Company, Indianapolis, Indiana.

Here is a story which he tells by way of illustration:

At the end of Buddy's first term at school his older sister brought home her report card and was praised for her high marks by her father and mother.

"Where is your report, Buddy?" inquired his father.

"I don't get mine till tomorrow," the little boy answered as he noticed that his sister's card showed 85 and 90 per cent in her various studies.

The next afternoon his mother saw him coming slowly homeward from school, softly crying, and ran to him.

"What in the world is the matter, dear?" she asked him anxiously.

"My report card," Buddy sobbed. "It's bad. I got 'nothing' in three subjects."

His mother looked at it. In reading, his grade was 90; in writing, 95; in arithmetic, 92; in nature study, 100. And then below were three zeros: Lateness, 0; Absent, 0; Misbehavior, 0.

* * *

Louis Kuehn, president and treasurer Milwaukee Corrugating Company, Milwaukee, Wisconsin, tells about a friend who returned from an unsuccessful fishing trip, and reported to his spouse:

"No luck at all on that fishing trip. I only got a few little nibbles."

"But, dear," said his wife, "why didn't you bring them home? At least, there would have been enough for your breakfast."

* * *

"Si" Koehler, secretary Chicago Retail Hardware Association, vouches for the authenticity of the subjoined incident:

The father, who was head of the firm, had been noticing that his son took a certain unofficial interest in the lady private secretary.

The young man had recently joined the staff of the firm to learn the business.

One day the private secretary, a very modern young woman, announced to him that his son had proposed to her and that she had accepted him.

"Well, I really do think you might have seen me first," said the father.

"I did," she replied, "but I preferred your son."

* * *

Life is made up of compromises, says Colonel W. J. Lockwood, of John H. Graham & Company, New York City.

It never pays to hold out for the last atom of one's rights, he declares, and he illustrates his meaning with this example:

"Why do you turn out for every road hog who comes along?" she asked rather crossly. "The right of way is ours, isn't it?"

"Oh, undoubtedly!" her husband replied calmly. "As for turning out, the reason is plainly suggested in the epitaph which appeared in a newspaper recently:

"Here lies the body of William Jay,

Who died maintaining his right of way;

He was right, dead right, as he sped along,

But he's just as dead as if he'd been wrong!"

* * *

The Search for the Good and the Bad.

It never takes a kicker long,
When hunting things at which to kick,
To find where matters are all wrong,
Or where the thorny boughs are thick;
'Tis not a sign that one is wise
If one complains by day or night;
The dullest may, with half-closed eyes,
Perceive where evils are in sight.

The ones who look for things to praise
Must be courageous and alert;
They can't afford to spend their days
In nursing every little hurt;
With manly hopes, with words of cheer,
With wisdom that is deep and sound,
And with a vision that is clear
They learn where goodness may be found.

—S. E. Kiser.

chants in Illinois devoting large newspaper space and a special display in window, nearly twenty feet wide, exclusively to the boosting of such plain—almost vulgar—articles as ash and garbage cans in November.

For the Nicholas Hardware Company believes in hitching their advertising in newspapers up with their advertising in show windows.

The photograph of the window display which is reproduced herewith was received sometime ago from Banister & Pollard Company, 206 Market Street, Newark, New Jersey.

This store is located on the principal business street of Newark, and yet this hardware merchant who sells many other apparently more important lines found it

The foregoing were honest examples of the work of one of the sifters and were not added to in any way.

The scoop in the center of the window contained a scoopful of ashes (not sifted) together with five new dollar bills.

This attracted the eye of the passersby and the cards on the exhibits told the story. By the scoop containing the ashes and bills, was a card, "Would you throw a scoopful like this into the ash can? It amounts to the same thing, if you neglect to use an ash sifter."

Because of it being against the law to photograph United States currency, the bills used were removed from the window, while the photograph was being taken, and imitation paper money substituted.



Window Display of Ash Cans, Sifters and Coal Shovels, Arranged by Charles S. Conover for Banister & Pollard Company, 206-208 Market Street, Newark, New Jersey.

worth while to devote their high-priced window space to a display of ash and garbage cans and ash sifters.

If this class of merchants can afford to do it, would it not be worth your while to adopt their method?

This attractive and interesting window display is described by Charles S. Conover, who arranged it, in the following:

Eleven ash cans, seven scoops and five rotary ash sifters were all the stock used to set this display.

On one mat (of blue cardboard) were shown the siftings as received in ash can after passing through a rotary sifter; on another the cinders that go unto the coal hod—"to be returned to the fire pit—genuine economy."

The two center mats, one showed part of a scoopful of ashes "as taken from furnace pit before sifting," the other, "part of the same scoopful of ashes after passing through sifter."

The curtains in the window were dark blue and the bottom of the window was covered with white paper. The cards were white; lettering black, excepting the large card, which had the words, "Sift and Save," and the price of the sifter, lettered in red.

This is a display which any dealer can easily duplicate with practically no expense and which should prove productive of results.

Because we desired to center the observer's attention on the ash sifters, price on ash cans and scoop were omitted. We sold some scoops and cans from this display and about thirty sifters during the time it was in, which was fourteen days. Of course, we have created an impression and more sales on sifters are sure to follow because of this window.

It is awfully hard for a genius to keep his name on the pay roll.

The Farmer Was Ready to Pay Cash, but Briggs Would Not Sell Him a Tractor for a Very Unusual Reason.

Briggs Is Really the Friend and Brother of Every One of His Customers and Looks After Their Interests with True Kindness.

Written Especially for AMERICAN ARTISAN AND HARDWARE RECORD by B. Christianson, Assistant Secretary, Wisconsin Retail Hardware Association.

The story is told of a certain road, much traveled by all classes of men, a highway out of a certain town. In the center of it reposed a rock. It had been here for years. Men had stubbed their toes on it, had fallen over it, had smashed their buggy wheels upon it, but still it remained.

One day the town boasted a new inhabitant and while passing along this road with another man who had traveled it for years, he noticed this rock and asked why it hadn't been removed.

The reply was, that "Everybody is too busy to do it," and "It's the County road boss' duty," but the new arrival said it ought to be removed and he was going home and get a pick and shovel and take it out that day.

He worked away the best part of the afternoon and finally succeeded in getting under the stone dislodging it, and rolling it to one side of the road.

Then he went back to fill up the hole and noticed a small box at the bottom. This he extracted and opened and found that it contained \$200.00 in gold and within a note left by an eccentric character who had lived and died in this town many years before.

The note read: "I placed this stone in the center of this road and I placed this \$200.00 in gold under it, to go to the first public-spirited citizen who took enough interest in his community to remove this menace to public safety."

Yes, it's only a story, a story with a lesson for many of you. And you can well profit by it. The rocks in your pathway have grown numerous. And you often walk around them. It's the easy way of existence, and then you wonder why you stay small.

Men have grown big because everywhere they traveled on life's pathway, they met resistance, but being determined they fought their way over and passed the obstacles to their progress. You'll never grow big in intellect, in ability, in power to influence men or peoples, if you have others preceding you and rolling the stones out of your way.

There is in a neighboring state, not a state where goods are merchandised differently or where the people wear different kinds of clothes, or buy more hardware, but just an ordinary kind of a community, a man so big, that you feel his presence long before you enter the town. For convenience we will call him Briggs.

"Briggs wants to see you," is the sign that stares at you from the fence railings, from the corner post, and from the sides of buildings as you travel on almost any of the roads in six counties of which Briggs' store is the center.

You don't know where he is and it bothers you and it's not long before you are asking "Where is this Briggs anyway?" and then Briggs has accomplished just the thing he set out to do. He has made you curious. And you wonder what he wants to see you for? Why, to visit with you, to chat with you about the crops, the weather, the pigs and the cows and anything of interest to you who are interested and residents of his trade territory.

• Today Briggs knows more people in those six counties than any other man alive. Whether on the street or in his office, or whether it is whispered in church, it is "Hey there, Briggs," or "How're you coming

Briggs," or "Hello E. C." Yes, and when he isn't in sight, it's, "Where is Briggs?" They all want to hear his "Morning, Son," "Hello, Bill," or "Hi, there Jack," and feel his hearty handshake or slap on the shoulder.

They all like him and why? Because as he expresses it, "It's just everyday homely friendliness." And when we analyze it we find it means a spirit of warm-hearted interest and sympathy which reaches out to other men and draws them to him.

And so we will illustrate this with an actual happening in Briggs' own store and it was not so long ago. A farmer came in there when a representative of a trade paper was present and this is what took place.

"Well, Briggs," says the farmer, "so you are not going to sell me that tractor are you?"

"Bill," said Briggs, going over and putting a hand

Friendliness is the secret of growth in retail merchandising.

Prices are pretty much the same everywhere. Commodities are fairly well standardized in the main lines. An Atkins' Silver Steel Saw, for example, is always of uniformly high quality in whatever store it is sold.

The main thing, therefore, which differentiates one retailer from another and which leads one to big success while the other lags, is friendliness—sincere, genuine friendliness coming from within, not made up of artificial smirks and smiles, but growing out of an inward sense of kinship.

This sort of friendliness is not merely service, although it embraces everything that is best in service. It is the friendliness which is the pith and marrow of true salesmanship.

on his shoulder," you don't need a tractor any more than a dog does two tails. You take my advice and get along with your horses. You don't need it yet and you are not ready for it. It will give you a lot of trouble and you can not afford to spend the time to keep it in order."

"Yes, but suppose I come into the store with cash down, will you sell it to me?"

"No I am not going to sell you a tractor. You wouldn't be satisfied with it."

Later the reporter found the farmer and asked him why he did not go to some other dealer and buy a tractor if he wanted it so badly.

"Well," he answered, "I wouldn't buy a costly piece of machinery from anyone but Briggs. He's my friend and I can depend on what he sells me. Maybe it's best for me not to have one anyway."

Then going back to Briggs, the reporter inquired why wouldn't you sell that man a tractor?

"It is just like this," he said. "If I had a brother who was a sort of shiftless farmer, the kind who lets his horses get sore under the collar, and lets things go to rack and ruin before he fixes them, I wouldn't sell him a tractor because I know well beforehand that he'd make a failure of it. Well there is not a man of my acquaintance that I don't treat as fairly as my own brother. This man is a fairly good farmer and will get along if he doesn't go branching out too much. But he is careless with his machinery and never gets through harvest without a breakdown. With a tractor he'd let the oil run dry and burn her up. He would get sand in the bearings. He wouldn't be satisfied and I do not want to make that kind of a sale. He is my friend now and I want to keep him my friend."

"And my salesmen," Briggs continued, "are trained to meet people with the same friendliness. They must carry out the policy of this business and that is not just to sell goods, but to mix with the people and learn what they think about and talk about while in their homes. This way I learn my own faults and the ones of my competitors, as well as those of the farmers."

This Mr. Briggs has seen the rock in the road. He, in his territory, was the newcomer who rolled it away and found under it the box of gold, which is the satisfaction of helping to lighten the burdens of others.

He says: "Honestly, it gives me a thrill when I see an electric light plant go out to brighten the dull routine in some farm home, or a power washer go out to take the place of an old washboard, and give rest to the tired back of some good farm wife, or a motor car out on some farm, for I know it will mean a heap of real fun for some overworked wife on the farm."

I dare say that Mr. Briggs has always been found a good competitor even if he has seen sixty-five competitors come and go in the eight towns where he now conducts stores. In his talk he outlined his views of business failures, as being due principally to an eagerness to sell, resulting in too low prices and the neglect of learning to understand one's own business.

Just one more thought, and that is this: Before you stumble over the rock of Competition and Strife in your path, why not get your tools and work, even if it means labor, hours of it, to remove it. Pool your efforts with a man who, though in the same line of

business, is just as human as you are and who desires to be friendly.

So when the rock is too big for one, your combined efforts will easily remove it and you may divide the box of gold among you in the form of not only increased profits but in the larger joy of living which comes when you know that you have done something for somebody without a thought of a reward.

Registers Lawn Mower Trade-Mark in Patent Office.

Dille and McGuira Manufacturing Company, Richmond, Indiana, have secured United States Patent

K I N G

144,514/

Office registration under number 144,514, for the trade-

mark reproduced herewith. The particular description of goods to which it applies is lawn mowers. Application for registration was filed March 9, 1921, and the Company claims the use of this trade-mark since 1900.

Warns Against Electric Sign Swindlers.

The National Vigilance Committee of the Associated Advertising Clubs of the World issues the following warning to the merchants of the country:

Retailers are being approached by salesmen to enter into contract for electric flashing signs for window and store display.

The contracts provide that dealers shall operate for a specified number of hours each day the signs furnished by the company and shall receive for this service one or two dollars a month for each sign.

The contracts of the various companies differ in regard to purchase price, selling in some instances for as high as \$18 and in other cases requiring no cash payment.

Dealers have been led to believe that sign display cards for any Nationally advertised commodity can be secured through the sign company or direct from the manufacturer of the product.

Investigation shows that very few, if any, National advertisers have agreed to furnish display advertising for such signs.

Complaints from dealers also show that the electric signs are not always of the highest quality and difficulty has been experienced in obtaining adjustments on defective materials.

Several companies, with headquarters in all parts of the country, are now engaged in signing up retailers for this kind of service.

The National Vigilance Committee suggests that retail merchants verify the existence of agreements between sign companies and National advertisers before entering into service contracts.

No man who has half-gone into this cost system business will be without it in running his retailing business.

Good Ideas for Window Display

Practical Lessons from Exhibits in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition. How to Get More Passers-By to Come into Your Store.

WINDOW DISPLAY SUGGESTS GIFTS FOR CHRISTMAS.

Even the dullest brother to the ox is a composite of dreams.

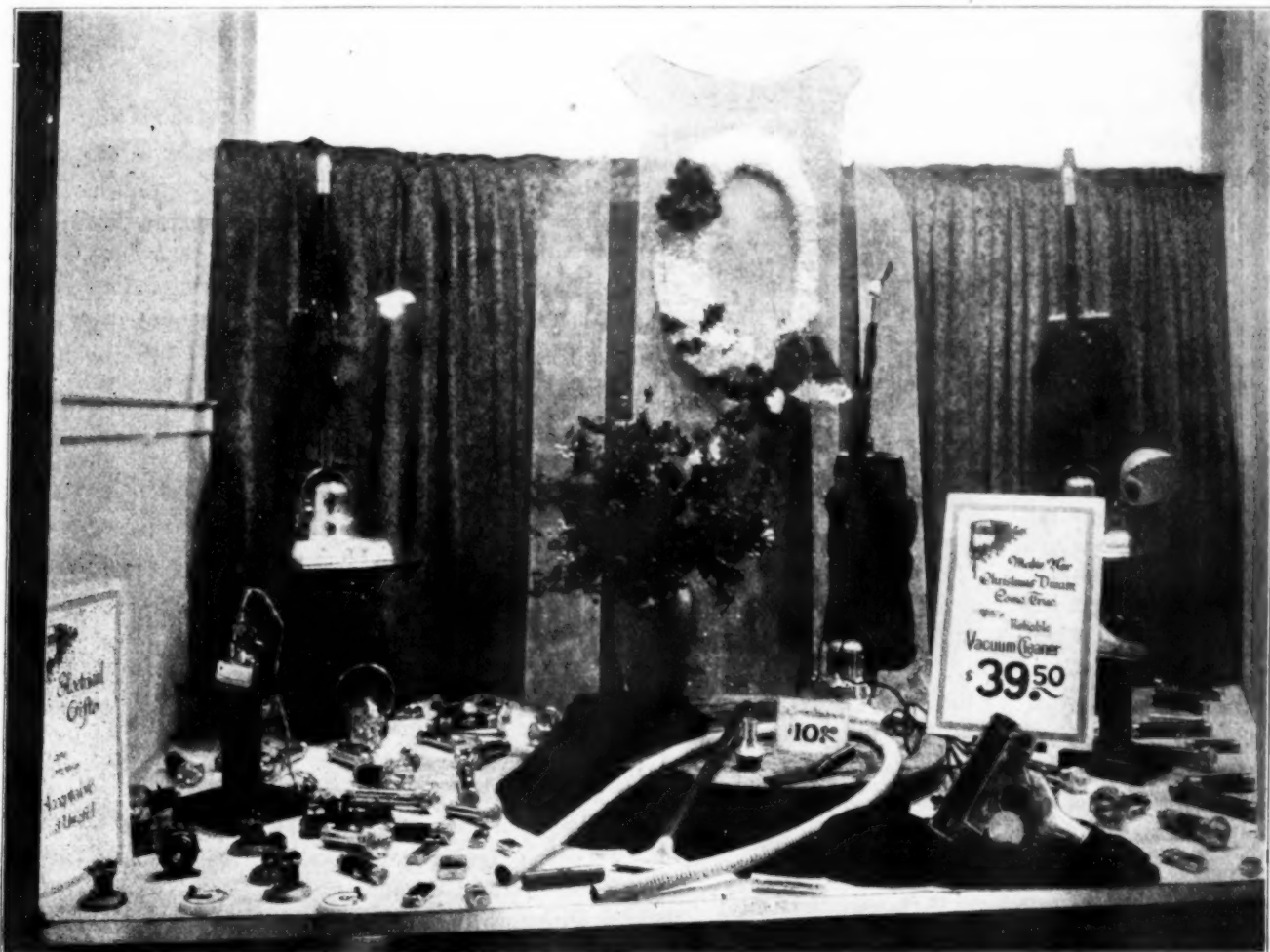
However stern and cold and unemotional a person may be, he can not wholly escape the stirring of dreams and the allurements of them.

Indeed, one may truthfully say that all achievement is necessarily preceded by dreamings.

It is good psychology, therefore, to use the thought of dreams in presenting suggestions for Christmas gifts through a window display.

This is tastefully done by Howard C. Crabb in the window exhibit shown in the accompanying illustration, planned and put in place for the Belcher and Loomis Hardware Company, 83-91 Weybosset Street, Providence, Rhode Island.

In the right foreground of the window is an artistically lettered placard bearing the words: "Make Her



Window Display of Suggested Gifts for Christmas, Planned and Put in Place by Howard C. Crabb for the Belcher and Loomis Hardware Company, 83-91 Weybosset Street, Providence, Rhode Island.

It is touching upon a universal trait, upon a nerve which runs through all human relations and which inwardly, at least, responds at once to stimulus, when we make appeal through some fashion or other, to fulfillment of dreams or desire for fulfillment of dreams.

It matters not what the motive or material may be.

The dream may be of some sunlit castle in Spain, or a hunting lodge of logs deep in the placid forest, or some little device in the home that would enable one to widen the margin of leisure in which to live more comfortably.

Christmas Dream Come True With a Reliable Vacuum Cleaner."

The chief articles of display in the window are plainly and unmistakably priced so as to heighten the good impression caused by the attractiveness of the exhibit.

Mr. Crabb describes this window display as follows:

"The curtain in the background was blue velour. In front of this was a background covered with artificial snow.

"On the center panel was an odd-shaped tinsel wreath with a large red poppy on the left side near the top, and a large bow and streamers of red ribbon tied on the right side near the bottom.

"A red light reflected on this background, giving a pleasing effect.

"In front of this was a round platform covered with green plush, puffed to the front of the window with red plush.

"A cleaner and some attachments were placed on this platform along with a vase of holly.

"On the red plush I placed a cleaner so as to show the inside.

"Vacuum cleaners were placed near the back of the window on pedestals.

"The floor was covered with green marble paper on which were displayed flashlights, toy motors, flat irons, toasters, and other electric needs."

That vacuum cleaners are good sellers for Christmas gifts was proved by the large volume of sales made during the time that this display was on exhibit.

Use of Substitutes in Hardware Is Wasteful.

Of late years various alloys have superseded brass in miscellaneous hardware, says Captain Harry George, Superintendent of Research of the Chase Metal Works, Waterbury, Connecticut.

Hardware should be permanent, and not subject to the frequent replacement and repairs.

Nothing is more unsightly than the hardware we see every day, disfiguring paint work by excessive rust—doors hanging on the fragments of a hinge, padlocks closed by rust, staples gone, and many other indications of waste.

There is a strong tendency to plate with brass, iron and steel hardware.

I have no doubt that many customers purchase these articles under the impression that they are getting solid brass, and are disappointed at the unsightly appearance which obtains when the plating wears away, and the bare iron or steel surfaces rapidly corrode.

True economy would dictate solid brass in the first instance to insure a reasonable length of service and satisfaction to the consumer.

Wisconsin Hardware Association Gives Buying Advice.

In keeping with its purpose of serving its membership in practical matters, the Wisconsin Retail Hardware Association, issues the following buying advice through the November edition of its "Members' Exchange":

We are indebted to one of our Milwaukee hardware jobbers for the following survey, the markets on house-furnishing goods and other sundry hardware items. These figures are based upon conditions as of November 1st, and should be a valuable guide to you in anticipating your wants in the lines given.

Aluminum Ware—Very reasonable. No reduction anticipated.

Gray Ware—Back to pre-war prices. Safe to buy.

White and Blue and White Ware—As yet not reached bottom. Further reductions anticipated.

Galvanized Ware—Fully liquidated. Cannot go wrong on buying now.

Brushes—All lines very cheap at present prices.

Brooms—Low, safe to buy.

Ice Cream Freezers—Future prices about 25 to 33 1/3 per cent lower. This may stimulate business.

Electric Irons—Prices very fair. Buy for holiday trade.

Nails and Wire—A change anticipated. Some authorities look for this during the latter part of November.

Solder—Below pre-war levels. Buy for future.

Zinc—Too high at present prices.

Wringers—Prices down below what manufacturers claim costs to make them. No declines anticipated.

Screens and Screen Doors—The following declines apply to prices on futures: Wood screens, 30 per cent; screen doors, 40 per cent.

Mouse Traps—Lowest in the history of many years.

Windows Should Be Washed Only When Sun Rays Do Not Strike Them.

Do not attempt to wash a window while the sun is shining directly upon it, for under such a condition it will appear streaked after drying, regardless of the amount of muscle used in the rubbing. One should wait until the window is shaded. A cloudy day is best. The best and cheapest equipment for washing windows is a brush and a rubber cleaner, the latter being generally known as a "squeegee."

Indicates Color Combinations for Window Displays.

The influence of a window display in stimulating sales is greatly increased by the use of harmonious color combinations.

Here are the combinations which can be made with assurance of pleasing and gainful effects:

Orange red with yellow.

Violet with yellow.

Violet with yellow-green.

Violet with green-yellow.

The following make good combinations:

Scarlet and turquoise.

Violet with orange-red.

Violet with orange.

Violet with blue-green.

Turquoise with orange.

Orange with blue-green.

Orange-yellow with purple.

Yellow with purple.

Green-yellow with purple.

The following make strong combinations:

Normal-red with blue-green.

Normal-red with green.

Scarlet with green-yellow.

Purple with normal-green.

The following make fair combinations:

Orange-red with purple.

Orange-red with yellow-green.

Orange-red with green-yellow.

Orange-yellow with turquoise.

Orange with green.

Scarlet with green.

Normal-red with green-yellow.

Purple with blue-green.

Disagreeable effects should be avoided because they produce unpleasant sensations and thus lessen the persuasive power of the window display.

The following combinations of color do not harmonize and, therefore, should be avoided:

Blue with blue-green.

Blue-green with yellow.

Blue-green with green.

Blue-green with yellow-green.

Blue-green with turquoise.

Normal-green with turquoise.

Turquoise with green-yellow.

Green with orange-yellow.

Orange with purple.

Violet with normal red.

Violet with scarlet.

Red (of any kind) with pink.

Bear in mind that, the sense of sight is, in the vast majority of cases, the main factor in receiving the message of window advertising. Hence, the importance of making favorable color impressions in the designing of your window displays.

Southern Hardware Jobbers Plan Spring Convention.

Special efforts will be made by the officers of the Southern Hardware Jobbers' Association to get an unusually large attendance at the Spring convention of the organization in New Orleans, Louisiana.

The president of the Association, W. M. Pitkin, has mailed a letter to the members in which he says that the Convention will be held in New Orleans and that the tentative dates are April 19, 20, and 21, 1922.

The local hardware jobbers of New Orleans have expressed their intention to make this Convention the very best, the greatest, and most efficient that has ever been held.

Use Banking Methods in Your Business.

Expert ability to sell a lot of merchandise all on credit even at a good profit can bankrupt a business, declares H. O. Roberts, Secretary Minnesota Retail Hardware Association.

A customer steps into the store and stops to admire a hundred and fifty dollar range, he continues. The proprietor sees an opportunity to make fifty dollars and brings into play his ability to interest and create the desire for possession. He closes the deal. The customer says that he can not pay but that is no objection in the mind of Mr. Proprietor. The hundred and fifty dollars goes to Bills Receivable and the range to the customer's kitchen.

The proprietor has a hundred and fifty dollar account and creates a hundred dollar bill, payable, for another range possibly. He thinks that he made fifty dollars but overlooks the one hundred dollars more

debt necessary for the purchase of another to take its place. The next customer got his eye on an electric washer and there is another hundred and fifty dollar credit sale and a hundred dollars more debt similar to the above. An expert salesman can do a lot of just such work each day and at the end of a month or a year wonder why he is hard up when making twenty-five to one hundred dollars profit per day.

Have you needed any money this year and gone to your bank to borrow possibly a thousand dollars and the banker said, "All right but money is a little tight just now. Can't you get along with five hundred dollars?"

Why not talk the same way to your customers? Sell the range by bringing into play expert selling ability. Then, when you reach the point where Mr. Customer says he can not pay instead of saying, "All right," refer to the fact that he said the old stove would last for six months more.

This is the time to help him stay out of debt and for you to wait until he can pay cash. He will be a better friend than if you had loaded him up with a hundred and fifty dollar debt and will remember you when ready to buy.

Entirely too many customers are loaded up with goods that they would not buy on time except for this expert salesmanship talk.

A good salesman says that it is good business. A good credit man says that it is mighty poor financing for any man with limited capital.

When a hardware man with ten thousand dollars invested tells me that he has five thousand dollars on his ledger and a fifteen thousand dollar stock, I tell him that he is on thin ice and had better look a little out.

He has a twenty thousand dollar stock, fifteen thousand dollars in the store and warehouse and five thousand dollars in his customers' kitchens, barns and sheds.

He is owing the jobber the five thousand dollars, also the five thousand dollars on his ledger. The jobber wants this ten thousand but will not take the ledger or the extra five thousand dollar stock. It is a mistake to take chances by filling a big ledger in order to increase volume.

If a man with ten thousand dollars should open up with ten thousand dollars worth of stoves that he bought and paid for, and should sell them all the first day for fifteen thousand dollars, he would be out of business insofar as he had the money to continue and the thing for him to do would be to stop rent and other overhead expense until he got his money back into his hands even if he should spend the other three hundred and sixty-four days collecting rather than attempt to do business on the jobbers' and bankers' money.

Very few hardware men make the mistake of carrying less stock and a less amount on their ledger than a good credit man would advise.

In great things and in little the law is the same. Though a man knows ninety-nine dangers out of a hundred and avoids them all, unless the hundredth also is avoided by plan or by chance, the whole work will perish because of it.

Declares AMERICAN ARTISAN Is Most Interesting.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

In renewing my subscription, I want to say that your paper is the most interesting I have ever seen.

Yours truly,

FRED J. STRIEWSKI,

—, Michigan, November 9, 1921.

Trade Opportunities in Foreign Lands.

The Bureau of Foreign and Domestic Commerce through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

287.—The American representative of a firm in Venezuela desires to purchase hardware. Quotations should be given f. o. b. American port. References.

288.—A mercantile firm in Canada desires to purchase tinplate and galvanized iron sheets in carload lots. Quotations should be given f. o. b. port of shipment. Cash to be paid. References.

295.—A mercantile firm in Canada desires to purchase glassware for cooking purposes. Quotations should be given f. o. b. port of shipment. Cash to be paid. References.

Coming Conventions.

Sheet Metal Products Association, Congress Hotel, Chicago, Illinois, December 8 and 9, 1921. D. C. Jones, Secretary, P. O. Box 769, Chicago, Illinois.

The Western Retail Implement, Vehicle and Hardware Association, Kansas City, Missouri, January 17, 18, 19, 1922. Exhibition at Convention Hall in charge of Louis W. Shouse. Headquarters, Coates House. Sessions in Century Theatre. H. J. Hodge, Secretary, Abilene, Kansas.

Pacific Northwest Hardware and Implement Association Convention, Davenport Hotel, Spokane, Washington, January 17, 18, 19, 20, 1922. E. E. Lucas, Secretary, Hutton Building, Spokane, Washington.

Mountain States Hardware and Implement Dealers' Association, Denver, Colorado, January 24, 25 and 26, 1922. W. M. McAllister, Boulder, Colorado.

Texas Retail Hardware Association, Adolphus Hotel, Dallas, Texas, January 24, 25 and 26, 1922. A. M. Cox, Secretary, 1808 Main Street, Dallas, Texas.

Oregon Retail Hardware and Implement Dealers' Association Convention, Imperial Hotel, Portland, January 24, 25, 26, 27, 1922. E. E. Lucas, Secretary, Hutton Building, Spokane, Washington.

Kentucky Hardware and Implement Association, Jefferson County Armory, Louisville, Kentucky, January 24, 25, 26, and 27, 1922. J. M. Stone, Secretary-Treasurer, Sturgis, Kentucky.

Indiana Retail Hardware Association, Convention and Exhibition, Athenaeum Hall, Indianapolis, January 24, 25, 26, 27, 1922. G. F. Sheely, Secretary, Argos.

Sheet Metal Contractors' Association of Pennsylvania, Hotel Berkshire, Reading, Pennsylvania, January 26 and 27, 1922. W. F. Angermeyer, Secretary, 714 Homewood Avenue, Pittsburgh, Pennsylvania.

West Virginia Hardware Association Convention and Exhibition, Wheeling, January 31, February 1, 2, 1922. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

Nebraska Retail Hardware Association Convention, Lincoln, January 31 and February 1, 2, and 3, 1922. George H. Dietz, Secretary, 414-417 Little Building, Lincoln, Nebraska.

Michigan Retail Hardware Association Convention and Exhibit, Grand Rapids, Michigan, February 7, 8, 9 and 10, 1922. Karl S. Judson, Exhibit Manager, 248 Morris Avenue, Grand Rapids, Michigan. A. J. Scott, Secretary, Marine City, Michigan.

Oklahoma Hardware and Implement Association Convention and Exhibition, City Auditorium, Oklahoma City, Oklahoma, February 7, 8, 9, and 10, 1922. W. B. Porch, Secretary-Treasurer, Oklahoma City.

Wisconsin Retail Hardware Association Convention and Exhibition, Milwaukee, February 8, 9, 10, 1922. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Pennsylvania and Atlantic Seaboard Hardware Association, Inc., Convention and Exhibition, Philadelphia Commercial Museum, Philadelphia, February 13, 14, 15, 16, 17, 1922. Sharon E. Jones, Secretary, 1314 Fulton Building, Pittsburgh.

California Retail Hardware and Implement Association, San Francisco, California, February 14, 15 and 16, 1922. Le Roy Smith, Secretary, 1112 Market Street, San Francisco, California.

Illinois Retail Hardware Association Convention, Hotel Sherman, Chicago, February 14, 15, 16, 1922. Leon D. Nish, Secretary, Elgin, Illinois.

Minnesota Retail Hardware Association Convention, St. Paul, February 14, 15, 16, 17, 1922. H. O. Roberts, Secretary, 1030 Metropolitan Life Building, Minneapolis, Minnesota.

Ohio Hardware Association Convention and Exhibition, Columbus, February 14, 15, 16, 17, 1922. Headquarters, Deshler Hotel. Exhibition, Memorial Hall. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

Iowa Retail Hardware Association Convention and Exhibit, Coliseum, Des Moines, Iowa, February 21, 22, 23, and 24, 1922. A. R. Sale, Secretary-Treasurer, Mason City, Iowa.

Michigan Sheet Metal Contractors Association, Jackson, Michigan, February 21, 22 and 23, 1922. Frank E. Ederle, Secretary, 1121 Franklin Street, S. E., Grand Rapids, Michigan.

Missouri Retail Hardware Association Convention and Exhibition, St. Louis, Planters Hotel, February 21, 22, 23, 1922. F. X. Becherer, Secretary, 5106 North Broadway, St. Louis, Missouri.

New England Hardware Dealers' Association Convention and Exhibition, Paul Revere Hall, Mechanics' Building, Boston, Massachusetts, February 21, 22, 23, 1922. George A. Fiel, Secretary, 10 High Street, Boston.

Virginia Retail Hardware Association, Roanoke, Virginia, February 21, 22, and 23, 1922. Thomas B. Howell, Secretary, Richmond, Virginia.

South Dakota Retail Hardware Association Convention and Exhibition, Mitchell, South Dakota, February 21, 22, 23 and 24, 1922. H. O. Roberts, Secretary, 1030 Metropolitan Life Building, Minneapolis, Minnesota.

New York State Retail Hardware Association Convention and Exhibition, Rochester, February 21, 22, 23, 24, 1922. Exhibition at Exposition Park. Headquarters and sessions at Powers Hotel. J. B. Foley, Secretary, 412-413 City Bank Building, Syracuse, New York.

Southern Hardware Jobbers' Association, New Orleans, Louisiana. Tentative dates, April 19, 20, and 21, 1922. John Donnan, Secretary, Richmond, Virginia.

Southeastern Retail Hardware and Implement Association, Convention and Exhibit, May 9, 10, 11 and 12, 1922. Chattanooga, Tennessee. Walter Harlan, Secretary, 460 St. James Building, Jacksonville, Florida.

Hardware Association of the Carolinas Convention, Winston-Salem, North Carolina, May 17, 18, 19 and 20, 1922. T. W. Dixon, Secretary-Treasurer, Charlotte, North Carolina.

Sheet Metal Contractors' Association of Indiana, Indianapolis, Indiana, May 15, 1922. Ralph R. Reeder, Secretary, 312 East Sixteenth Street, Indianapolis, Indiana.

National Association of Sheet Metal Contractors Convention and exhibition in the Athenaeum, Indianapolis, Indiana, May 16, 17, 18, and 19, 1922. Edwin L. Seabrook, Secretary, 608 Chestnut Street, Philadelphia, Pennsylvania.

Associated Advertising Clubs of the World, Milwaukee, Wisconsin, June 11, 12, 13, 14, and 15, 1922. Carl Hunt, Secretary, 110 West 40th Street, New York City.

Retail Hardware Doings.

Kansas.

E. M. Hager and H. D. Millard have purchased the Ross and Swart hardware stock on North Main Street, Eureka.

Missouri.

The big hardware and implement stock of the Douglas Hardware Company, Rock Port, has been moved to the firm's new business house.

Nebraska.

C. T. Williams and Earl Young have opened a hardware store at 220 South Twenty-fourth Street, Omaha. The firm name will be the Williams-Young Hardware Company.

The Courtright Hardware Company has purchased the Gumpert Mercantile Company's \$75,000 store building at Fremont.

Texas.

The Northcutt Hardware Company has opened a hardware store in the Strohe Building, North Washington Street, Marshall.

Wisconsin.

The Ernst Clausen and Son's hardware store of Grafton was completely destroyed by fire.

Advertising Help and Comment

Send Us Copies of Your Advertisements. Let Us Help You Get Bigger Results by Advice and Suggestions. The Service Is Free. Don't Hesitate to Take Advantage of It.

It is a good thing to let the people know that you sell and install furnaces.

In addition, it is a good thing to let them know that you handle a nationally advertised make of furnaces.

The chances are that quite a few of those who read the advertisement

of Fesler's Tin Shop, which appeared in a local newspaper of Palestine, Texas., is weakened by slovenly typography.

It is a good advertisement. It is properly written. It tells the people just what Fesler's Tin Shop is prepared to do for them.

But the typographical makeup of

composition so that his message may receive full force of presentation.

* * *

Exceptional values for the money are offered in the advertisement of the United Hardware & Tool Com-

FURNACES

CHARLES KOEHRING

878-882 Virginia Ave.

**Caloric Pipeless
Garland Pipe**

CASH OR PAYMENTS

PROSPECT 85, AUTO 51-593

of Charles Koehring, in the *Indianapolis Star*, Indianapolis, Indiana, will remember more or less distinctly his name in connection with furnaces.

Probably the line in the advertisement which will make it stick in the memory of a considerable number of people is that which says "Cash or Payments."

Nowadays the family budget requires careful engineering.

Many families would like to have a warm air heater installed but are deterred by the thought of having to pay the whole cost at once.

This is a small advertisement and consequently does not afford room for anything more than bare statements without much selling argument.

* * *

No matter how illogical it may be, we judge largely by appearances.

A poorly dressed man whose trousers bag at the knees does not impress us as a master of industry. He may be multi-millionaire for all we know, or a genius of some sort or other.

It takes more wisdom than the average customer has at his disposal to ignore the surface indications and study the substance of things.

That is why the advertisement

the advertisement gives it an appearance of shabbiness.

The copy is badly spaced. One of the words is misspelled. The seventh line is lopsided and has two of the small quads sticking up.

All this may seem unimportant. But an advertisement is primarily

Fesler's Tin Shop

For Anything in

Sheet Metal

We Reline and Repair stoves,
make ventilated flues, chimney
tops, hang gutters, buil cisterns
anything made of sheet iron

WE DO IT
Fesler's Tin Shop.

PHONE 290
404 West Oak Street

to the eye in its appeal. It depends first and foremost upon the physical impression which it creates through type.

Experience has amply proved the importance of typographical dress in printed salesmanship.

The advertiser has a right to demand from the publisher better

pany, reproduced herewith from the *Cleveland Press*, Cleveland, Ohio.

Descriptions and illustrations are sufficient for the purpose of giving an idea of the commodities listed.

Prices are printed in big type, so that the genuine character of the bargains is perceived at a glance.

Typographically, the advertisement is neatly composed and effectively balanced by enough contrast of white spaces.

All in all, it is a good, sturdy example of advertising workmanship, bearing an unmistakable quality of sincerity.

* * *

Persistent Publicity Pays

If you see a person only once, you probably won't be able to describe him a month from now.

Similarly, if you see an advertiser's name only once, the chances that you will not remember till the end of the day.

Wherefore, to gain permanent results for your store from advertising, your publicity must be continuous and persistent.

UNITED BARGAIN BULLETIN

Were you among the crowds that attended our

CLEAN-UP SALE OF

ELECTRICAL SUPPLIES

Well, it ends tomorrow—Don't miss it

Thickness Gauges
.0015 to .015

Just what you have been looking for
Special

69c

Thin Double End
Wrenches

Set of five
wrenches 10
inches 714 to
1 inch regular
\$1 value 50c
each

59c

Ratchet Wrench Set



Complete of ratchet wrench, extension bar and 2 piece end sockets complete

\$2.19

11

AN steel Auto
Socket a very good
part made for gen-
eral use and sold
for the low price of

\$1.39

UNITED

HARDWARE & TOOL CO. INC.

306 PROSPECT AVE

Warm Air Heating and Ventilating

*Better Installations. How to Sell More Warm Air Heaters.
Reports of Progress in Warm Air Heater Research Work.
Ventilating Factories, Garages, Theaters, and Houses.*

USE INSTRUCTIVE ADVERTISING TO KEEP BEFORE THE PEOPLE.

With the setting in of cold weather, many warm air furnace dealers and installers instinctively relax their efforts to get business.

Apart from a few repair jobs and orders for cleaning furnaces, they consider it more or less a waste of time to continue advertising their establishments to their patrons and prospective customers.

In this they err. Persistence is essential to growth in business.

A warm air furnace dealer and installer who wants to enlarge his circle of trade must keep his business and its facilities for workmanship and service constantly before the people.

Of course, this must be done intelligently and with as much timeliness as possible.

Thus, for example, at this season of the year it is appropriate and helpful to send out advertising circulars to all those who already have warm air heaters, in which accurate advice is given regarding the best methods for operating the warm air heater.

A circular of this description could very well be made up with the reliable instruction and simple set of rules compiled some time ago by a Committee of the Illinois Chapter of the American Society of Heating and Ventilating Engineers.

Here, in substance, are the instructions and rules:

For soft coal the method of firing is somewhat different from that suggested for hard coal. It is necessary thoroughly to clean flues and passages of the warm air heater at least once a day when soft coal is used, and to clean base of chimney and smoke pipe once a year.

Method of Firing Soft Coal.

1. Fire often and lightly, keeping grates fully covered.
2. Do not spoil fire by stirring in around or mixing it up.
3. Use slice bar under fire bed on top of grates, lifting only enough to break or crack open the mass. Keep fire free from clinkers.
4. In large warm air heaters use the alternate method of firing: First, one-half of grate, and, next, firing the other half. This is done to have a bright fire to assist in burning the gases from the coal just fired and to make heat until the fresh coal ignites.
5. Don't smother your fire.
6. Use the smaller prepared sizes of coal if possible. If you can not get the small coal, break the large coal into small lumps. Wet all soft coal thoroughly before firing.
7. The best way to fire warm air heaters is to get the house warm by firing lightly and often. Then

fill fire pot full of wet coal. Next take a piece of pipe or broomstick and poke a hole down through the fuel bed to the grate. Carefully withdraw and leave hole in fuel bed. Check off the draft so that it will not burn too rapidly. This hole soon will carry a large blue flame, which is gas driven off from the fresh coal. If this method is followed, the gas will not be lost up the chimney.

Ashes.

1. Don't shake grate violently. It wastes coal.
2. Keep ash pit clean.
3. Never allow ashes to get within six inches of grate.
4. Remove ashes from last shaking before shaking again.

Draft.

1. Be sure your chimney is large enough, high enough and absolutely tight.
2. Do not allow any connections to be made to the heating chimney, excepting the warm air heater alone.
3. Regulation of draft is very important in saving coal and should be attended to at once by an experienced man. If you can not regulate your draft be sure to call for assistance.
4. The draft to ash pit should not be open any more than necessary to maintain the desired temperature.
5. Do not open ash pit door to increase draft. Use draft damper under grate provided with warm air heater for this purpose.
6. Check draft must not be open unless draft damper under grate is closed.

Method of Firing Hard Coal.

When hard coal is used, the flues and passages of warm air heater should be cleaned at least once a week.

1. In using anthracite coal a bright fire should always be kept if you wish heat. In building up a fire use a small quantity often with good draft until the fire pot is full to the center of fire door. Draft then can be checked to hold the heat desired.
2. A hard coal fire should never be disturbed by stirring or breaking up with a poker.
3. Remove clinkers, if any, through grate or clinker door.
4. Use size of coal recommended by maker of warm air heater. Don't wet hard coal.

Ashes.

1. Don't shake grate violently. It wastes coal.
2. Keep ash pit clean.
3. Never allow ashes to get within six inches of grate.
4. Remove ashes from last shaking before shaking again.

Draft.

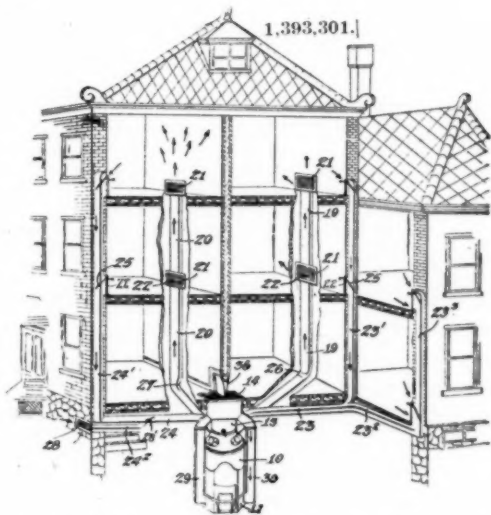
1. Be sure your chimney is large enough, high enough and absolutely tight.
2. Do not allow any connections to be made to the heating chimney, excepting the warm air heater alone.
3. Regulation of draft is very important in saving coal and should be attended to at once by an experienced man. If you can not regulate your draft be sure to call for assistance.
4. The draft to ash pit should not be open any more than necessary to maintain the desired temperature.
5. Do not open ash pit door to increase draft. Use draft damper under grate provided with warm air heater for this purpose.
6. Check draft must not be open unless draft damper under grate is closed.

General Instructions.

1. Weather strip your windows and doors or stuff cracks with cotton.
2. Keep your room at 68 degrees (best heat for health).
3. Heat only the rooms you use all the time.
4. Close bedroom doors when windows are open and shut off register.
5. When any room is kept at a lower temperature than balance of rooms keep door closed.

Acquires Patent Rights for Warm Air Heating System.

Under number 1,393,301, Charles McVeety, Cheltenham, Pennsylvania, secured United States patent rights for the warm air heating system, described herewith:



In a warm air heating system for buildings, the combination of an air recirculating and a pipeless system, comprising a furnace, having an outer casing, an inner casing and an air thoroughfare there between, means forming a vertical warm air conduit therefrom, a register directly above said conduit, means forming a cool air conduit about said warm air conduit, warm air pipes extending laterally and then vertically from said furnace through the partition walls of the building, cool air ducts paralleling the outer casing of said furnace and in spaced relation thereto, connections between said ducts and the base of said furnace and with the cool air conduit from the said register, whereby

cool air is admitted to said thoroughfare, extensions to said ducts extending laterally and then vertically through the partition walls of the building, means to admit air from the floor levels of the rooms in said buildings and from the outside thereof, to said extensions whereby the cool air descends through said ducts to said thoroughfare and is heated therein by radiation from the inner casing of said furnace and ascends through the said warm air pipes and the conduit from said furnace and means to regulate the direction and volume of the flow of the ascending warm air, substantially as described.

It Is Easy to Get Benefit from Your Own Powers.

Would you be at peace? Speak peace to the world.

Would you be healed? Speak health to the world.

Would you be loved? Speak love to the world.

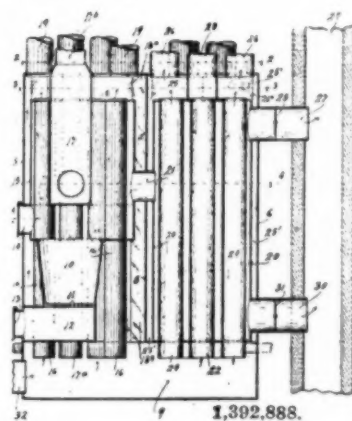
Would you be successful? Speak success to the world.

For all the world is so closely akin that not one individual may realize his desire except all the world share it with him.

And every good word you send into the world is a silent, mighty power, working for peace, health, love, joy, success to all the world—including yourself.

Is Granted Patent Rights for Warm Air Furnace.

Dewitt A. Beunett, Minneapolis, Minnesota, has secured United States patent rights under number 1,392,888, for a warm air furnace illustrated and described herewith:



In a warm air furnace, the combination with an outer primary casing and a secondary outer casing, said two casings having a common base air chamber, primary and secondary drums respectively within said primary and secondary casings spaced therefrom at the sides, top and bottom, and affording, respectively,

primary and secondary combustion chambers, the said two combustion chambers being connected for the passage of hot gases from the former to the latter, primary and secondary air pockets formed respectively over the tops of said primary and secondary combustion chambers, primary and secondary warm air tubes extending respectively through said primary and secondary combustion chambers and connecting with the air chamber in the base and with the air pockets, and primary and secondary warm air pipes extending respectively from said primary and secondary air pockets.

If it is true that every failure is a step toward success, the fact would explain why some men become richer every time they fail.

Practical Helps for Tinsmiths

No Two Jobs Are Exactly Alike. Therefore, the Sheet Metal Worker Has to Meet Each Difficulty as It Comes. Send Your Problems to Us. Let Our Experts Help You.

PATTERNS FOR METAL TOMBS.

By O. W. Kothe, Principal St. Louis Technical Institute, St. Louis, Missouri. Written especially for *American Artisan and Hardware Record*.

In continuing our subject of metal tombs, in figure 6, we have a design that is both pleasing and out of the ordinary, where the base part is square, while the upper part is tapering both in front and side elevation.

The reader must consider all views and out of the details he must picture the finished article.

To lay out a problem of this kind, first draw a cen-

ter line of front elevation and detail the outlines of cross, giving it the taper you feel should look well and also the width of the fillets and the depth, of the members. After this, add the base and then project the end elevation giving the sides the taper you feel would look well.

Right here we must say that a great many tradesmen do not appreciate the amount of feeling there is to a pleasing design. So many of the trade, especially in cornice work, make their members of the same width no matter if they are immediately before the eye or on a 10-story building.

Such procedure can not be tolerated in metal tombs, because the design is immediately before the eyes and hence, the members must be finer, better proportioned and more wholesomely adjusted as relating to one another than is necessary with a cornice way up in the sky line.

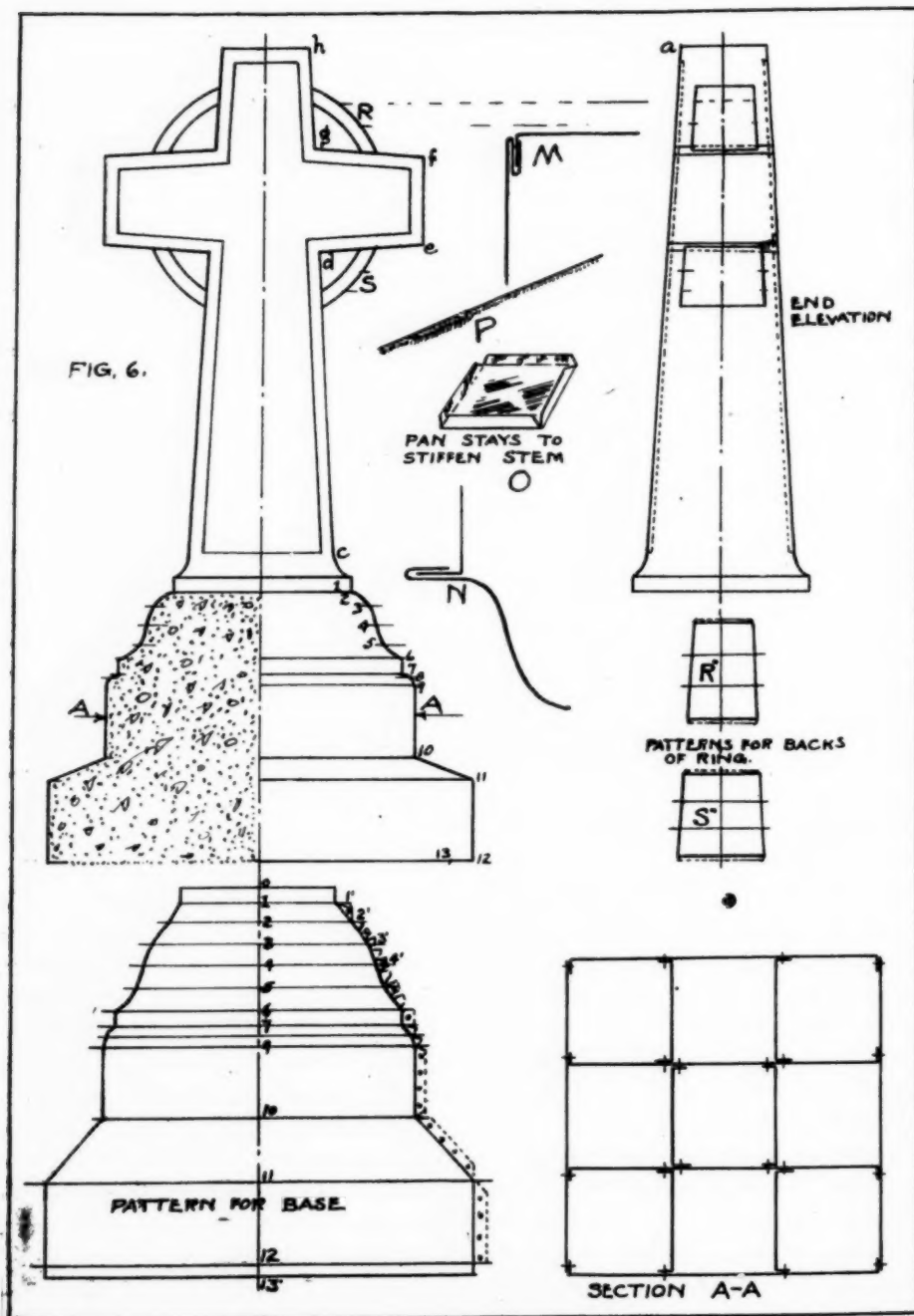
So the study of art must be governed by the way a person looks at his object. Rules can not be laid down since art is a matter of feeling and we draw an artistic design more from our feelings than from our perception.

Of course, the eye has a great deal to do with the shape and the lines that take form, but in the end the feelings of a person either accept or reject the creation.

Now the ability to have artistic temperament is something that can not be developed in a night or by an impulse of inspiration. It is a process of years of study and always seeking to give higher and finer expression to your lines.

To lay out the pattern for the base, we divide all curved lines in equal spaces as from 1 to 6 and from 7 to 9 and pick these spaces and set them off on the center line below elevation.

From each of these points draw stretchout lines and then



Patterns for Metal Tombs.

from each point in the base of elevation, drop lines to intersect these stretchout lines of similar number, which establishes 1'-2'-3'-4', etc. Draw a line through these intersections and you have the pattern for base finished.

Observe in laying out the base of the cross we must pick the girth from line a-b of end elevation and use that on a center line. Then by projecting your lines you will develop the true face view.

Notice, owing to the taper of end elevation, the real pattern of the face will be a trifle longer than the working drawing of front elevation; hence, the necessity of the above procedure.

Then to get the pattern for the ends, we pick the girth as c-d-e-f-g-h from front elevation and set it off on a line below end elevation and then develop the widths in pattern to suit the widths in end elevation.

Notice that this idea is carried out with the patterns for back of rings R and S as front elevation as shown by patterns R"-S".

The seams in the corners of cross should be made as at M while the center panel of the cross the seams should be counter-sunk and well soldered as at P.

All the solder on the outside must be scraped off so a perfectly smooth surface is left. Now to stiffen the body of seam as well as the cross arcs, pan-shaped stays as at O are formed up and inserted at intervals of 12 to 18 inches apart and securely fastened to stem.

This prevents buckling and also adverse strain from extreme weather conditions. The cross part can be attached to the base as at M, while the base itself should be reinforced with partitions similar as section A-A. This is then filled with concrete or some other suitable solid heavy material, so the sides will not pull away caused by expansion and contraction and thereby become loose against the solid substance.

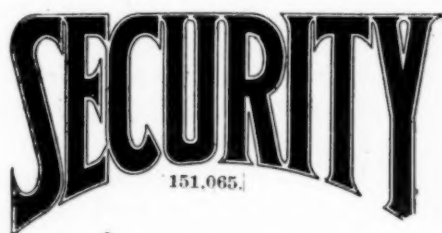
In assembling the corners of the base, it would be preferable if they could be welded, and if not, they should be seamed where possible, with a double lock.

Other places they should be well lapped and riveted; counter-sinking the rivet head on the outside so a perfectly flush surface is produced.

Many of these details can be worked out as the manufacturer progresses with his product. Then, too, the material used, if copper or brass, should be sufficiently heavy, say from 16 to 20 ounce at least to make a rigid job.

Patent Office Registration for Metal Cans Is Granted.

Sheet Metal Specialty Company, Pittsburgh, Pennsylvania, have secured United States Patent Office



registrat i o n under number 151,065, for the trademark reproduced here-with. The particular description of goods to which it applies is metal cans.

Detroit Sheet Metal Contractors Hold "Get Together" Meeting.

The Detroit Sheet Metal Contractors' Association held a "Get Together" meeting at the Board of Commerce Monday evening, November 14th, in Detroit, Michigan.

There was a large membership present who enjoyed an excellent banquet, after which they were favored with some timely and very interesting speeches by various guests of the Association.

The speakers and their topics were as follows:

N. J. Kennedy, president of the Associated Building Employers of Detroit, "Benefits of Organization."

Charles A. Bowen, secretary of the Associated Building Employers of Detroit, "Progress of our A. B. E."

F. E. Ederle, Michigan State Secretary, "Our State Association."

N. L. Pierson, Jr., president, Michigan Travelers' Auxiliary, "Salesmanship."

Mr. Otto Schwartz of the S. & O. Sheet Metal Works presided as chairman of the evening.

After the conclusion of the program, an enthusiastic business meeting was held and A. J. Rasch was unanimously elected a paid secretary to look after the growing affairs of the organization and advance its many interests. The secretary will maintain an office in connection with the Associated Building Employers at 2002 Real Estate Exchange Building, Detroit, Michigan, where all association business will be transacted.

Grand Rapids Local Changes to a More Significant Title.

The chief topic at the regular monthly meeting, November 8th, of the Grand Rapids Heating Contractors' Association, held in its club rooms, Grand Rapids, Michigan, was the advisability of changing the name of the organization.

It was agreed that, the title of "Heating Contractors" did not convey a comprehensive idea of the scope of the business of the membership.

Consequently, a decision was reached to alter the designation of the Association to the more significant name of "Grand Rapids Sheet Metal and Heating Engineers."

President Harry Rhodes reports that the entire membership was present at the meeting.

The majority in attendance signified an intention to be present at the next meeting of the State Trade Extension Board, December 5th, in Lansing, Michigan, when the question comes up of adopting a trade-mark for the Michigan Sheet Metal Contractors' Association.

Issues Circular of Galvanized Residence Basement Window.

An illustrated circular of "BNCO" galvanized steel residence basement window has just been issued by the manufacturers, Biersach and Niedermeyer Company, 212-20 Fifth Street, Milwaukee, Wisconsin.

Adequate descriptions and measurements are given, together with a brief summary of the economy and advantages of this type of window.

Bill Fraid Had Cold Feet and, Therefore, Greenberg Sent Him a Perfectly Reliable Hot Water Bag.

Everyone Must Work Out His Own Destiny. But That Does Not Mean Working It Out All Alone. Sometimes a Hot Water Bag Helps.

Written Especially for AMERICAN ARTISAN AND HARDWARE RECORD by J. C. Greenberg, Cleveland, Ohio.

Bill Fraid was discussing things with his wife which I guess was not any of my business, but when I stepped into the shop that noon, I could not help overhearing that it was strictly a family affair. To my surprise Bill asked me over, and before I could think Bill and Mrs. Bill were talking to me at once. I smiled, and asked them to talk one at a time. Mrs. Bill womanlike got in the first say. She began:

"Bill and I were arguing about this shop, and Bill does not want to listen to reason. I am insisting on a real sheet metal shop, and Bill simply wants to have a common tin shop. I am just sick of it all." The last remark was full of disgust.

"Well," I asked, "What's the answer?"

"There will be no answer," came from Bill. "I can't see anything in this business for me. My wife's grandfather passed away and left her nine hundred dollars, and she wants to blow it in on this dump. I don't want to lose her money, and we have been arguing about it for a week. We agreed to leave it to you."

I was in a fix. To please one, I must displease the other. I did not like the job, except that it would settle a family row. These kind of rows are bad, and mean scraps all the time. So I decided to end it as soon as possible.

"Bill," I asked, "just what is your objection to having a real place of business, and just why do you so love this dump as you call it?"

"Well," Bill began to explain, "It's like this. I have been in this town four years, and you remember the first day I opened, because you sold me the first bill of goods. After all these four years, I have really not a single thing to brag about. I work like a horse all day, and my wife hasn't got a thing to be proud of. What is the use of blowing in her money on a dead proposition?"

"That is all true," came from Mrs. Bill. "Still, I don't see why he should refuse my help. I am as much interested in this business as he is. All I ever expect to have is depending on this business because that is all Bill knows and he won't listen to reason."

I was certainly up against it in this matter. Just then, Bill spoke up, "Shucks!" he said, "This town is not a good place for this business. There is too much competition, and if I could go to some other town, I would do well."

"What you say is not true," I said to Bill. "The very fact that competition is fierce, as you say, proves that there is work to be done. This town is a good town. You have been here four years, and now you

want to quit and go elsewhere to start over again, and lose four years of your life. There is really no sense in this at all. You are simply in the rut, and are bluffed out by your fear of competition. Bill, you have the right name. Your name is Fraid, and you are afraid to tackle a real man's job. I believe that your good wife is a better business man than you are."

"I don't know about that," Bill protested. "Women have poor ideas about business. They think that all that is necessary is to say 'it can be done' and it is done. She is all wrong."

"Bill," I said earnestly, "You are a lucky devil to have such a wife. She can see farther than you can, and her ideas are as sound as a dollar. Just look at your shop. You have a bench,

and a few hand tools. You are not prepared to tackle a big job if you had one. When a big job comes along, you can not handle it to save your life. What has competition to do with your unprogressive ideas? What you want is a cornice brake, a slitting shears, and a lot of real machinery to step out and be ready to tackle what comes along. As you are now, all you can do is a few repair jobs. You are so accustomed to being poverty-stricken that you think there is no other way. Ambition is what you need, Bill."

Mrs. Bill was all smiles. I was merely telling Bill the truth and not siding with Mrs. Bill. But it made her feel good.

"That is the very thing I was always telling him," Mrs. Bill said earnestly, "We should either be in business or not. This place is a disgrace for any woman who loves her husband—"

The old-fashioned country doctors still tell their patients to keep the feet warm and dry. That's good advice for changeable winter weather.

It is good advice also for timid, backward sheet metal contractors.

Greenberg sent one of these sheet metal contractors a hot water bag because he figured that that was the best way to teach him a needed lesson.

Cold feet, literally and figuratively, are bad for the system, both as regards health and business.

There are various causes for cold feet. But the effect is the same.

In business cold feet usually come from lack of self-reliance.

The right kind of a hot water bag to use in these circumstances is ambition.

She did not finish that last sentence. The tears came, and womanlike, she simply had to have her cry.

"Listen here, Bill," I said sharply, "You are a poor fish. You do not realize what that wife of yours is suffering. She is simply ambitious, and will sacrifice all she has. It is up to you to make her happy."

"No, siree," came from Bill emphatically. "I can't see this plan. Suppose I do use her money, buy tools as you say, and then fall down. I will never hear the last of it. Then we will be broke for fair. If this money was all mine, I would not talk this way, but it is hers, and that makes a difference to me. We will need some of that money in a couple of months, and I have not the right to blow it in."

Mrs. Bill resumed some sewing she was working on. She was silent, but her eyes were full of tears. The little dainty infantile things were partly finished, and lying in a pretty sewing basket on a newspaper on the bench. Gee, it was really pathetic. It told a story that no one could tell in real words.

"Of course, Bill," I said, looking at the sewing basket, "I really have no right to say it, but you are a man that has no business nerve. You are afraid to depend on yourself, and will always be a poor business man. Take part of this money and fit out a real sheet metal shop. Put in a line of first class furnaces, fix up a show window, and have a show room. Let your wife keep your books, and pay her a salary as you would a stranger, and get on the right side on business. Let your competitors respect you. Try to get out of your rut. It will be the making of you. It will take a couple of months to do this, and by that time, Mrs. Bill will be as happy as she wants to be. Quit being a piker, and be a real business man. Believe me, your good wife has faith in you, and you do not appreciate it. You can never hope to be a success in the way you are dubbing around. There are too many 'tinnies' already who are afraid to progress, and live, only to die poor men. If you are in business, have a business place. If you are a journeyman, stop paying rent and overhead just to keep your tools out of the rain. Bill, can't you see that you are a gonner as you are? Better take your wife's advice, and become somebody worth while. Have a clean, well-equipped shop, and be a credit to your town, not an eyesore. It is your duty."

At this point, Mrs. Bill smiled through her tears. She was really happy.

"I'll think it over," Bill finally said, "and if you will see me about nine in the morning, I will have decided, and I will ask you to arrange some plan for me."

With Bill's last remark, I bade them both good day, and slyly winked to Mrs. Bill, saying, "I will send Bill a little present tonight, which will help him decide to start in for real business, and have the kind of place you have your heart set on. Good-bye."

As I closed the door of the shop, I went immediately to the drug store, and purchased a rubber hot water bag. In the box I placed a little note which read, "To Bill Fraid. Good for cold feet," and had the drug store deliver it at once.

In the morning according to appointment, I walked into Bill's shop. Bill was all lit up, and extending his hand he said:

"Old friend, that water bag you sent me was just the thing I needed. It set me to thinking, and I came to the conclusion that cold feet are not good for business, nor for good wives. You won, old pal. I shall have the most progressive shop in town. Just watch my smoke. The bank said it would back me, and I do not need her money."

Mrs. Bill just threw her arms around Bill's neck, and kissed his besmeared face, crying and smiling at the same time. Women are sure instinctive.

Mr. Sheet metal man, have you cold feet? How badly do you need improvement and are afraid to try? Fear has killed success more often than anything else. Brace up, get your back bone to work, and go in for bigger and better business for 1922. Atta boy!!

Discuss Plans for Michigan Sheet Metal Convention.

Plans for the annual convention of the Michigan Sheet Metal Contractors' Association, to be held February 21, 22, and 23, 1922, in Jackson, Michigan, were discussed at a meeting of the Jackson Local, Wednesday evening, November 9th.

Frank E. Ederle, Secretary of the State Association, was present at the meeting and took part in the discussion of the plans.

The program committee reported that rapid progress was being made in securing speakers and arranging for the best program book which has ever been published by the association.

President Copsey stated that he would name all local committees within the next ten days.

Gets Trade-Mark Registered in Patent Office.

The Hydraulic Steel Company, Cleveland, Ohio, has procured United States Patent Office registration under number

135,648, for the trade-mark reproduced here-with. The particular description of goods to which it applies is rolled steel sheets and rolled steel in various forms and finishes. Application for registration was filed July 31, 1920.



ous forms and finishes. Application for registration was filed July 31, 1920.

As long as a man is a "jack of all trades," he is shooting at success with a shotgun. If he wants to succeed in a big way he must specialize. Specialization—singleness of purpose—is the high-powered rifle for hunting big business game. There are all sorts of big jobs just as there are all sorts of big game. Definitely decide the kind of job you want; then aim at it with specialized training—and you'll succeed.

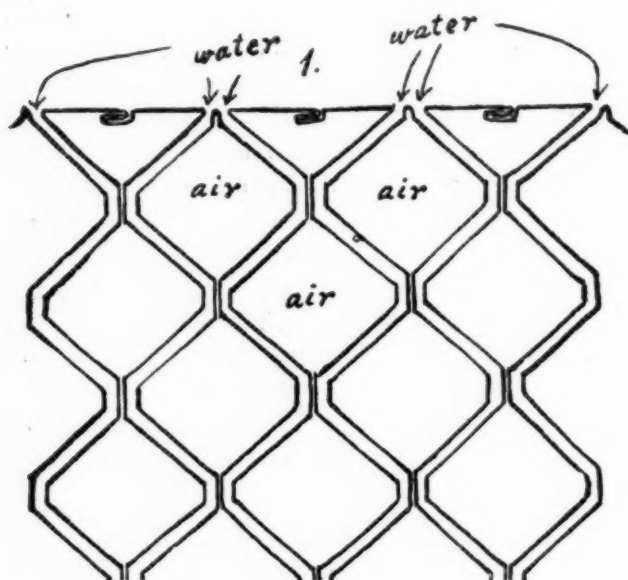
Describes the Principal Features of Cellular Core Construction as Used in Automobile Radiators.

The Various Pattern Corrugations of the Metal Form Both Water Channels and Air Passages in the Make-up of the Cellular Core.

Written Especially for AMERICAN ARTISAN AND HARDWARE RECORD by E. E. Zideck, New York City.

In the preceding chapters, several of the tubular fin core constructions were described. The less common of that pattern, and the newer improvements in it we shall discuss later. Now we turn to the core construction called cellular.

The cellular core has no separate fins as the fin core has. Instead, the various pattern corrugations of the metal form both water channels and air passages.



Picture No. 1, Enlarged Pattern, Showing Water Channel Formation in No. 2 Cellular Core.

In the illustration herewith it is seen that it takes four strips of metal to form one vertical section of the core.

But as the cellular core has no sections, and each corrugated strip continues to form a part of the next vertical channel, each straight line of the core No. 2, depicted herewith comprises two strips of metal, and each intersection of these lines, four. In this core, there is water in every strip, and the air just passes the walls.

The cellular core has no separate head sheets. The strips are seamed together on top and bottom of the core (see No. 2 illustration) and form bottoms which are open for water to pass into the water channels but not into the air spaces. These bottoms, formed of the same strips of which the core is formed, solder directly to the tanks.

The numerous metal strips or plates of which the cellular core is composed, are impressed at their edges to meet, leaving their centers open for water to enter.

Picture No. 1, shows the metal strips in their true formation.

Picture No. 2 shows the metal strips so stamped

at their edges that they meet and close up the water passages in the front and the back of the core. These joined edges of the impressed metal strips which remain apart except at the joined edges, are dipped in solder and joined tight.

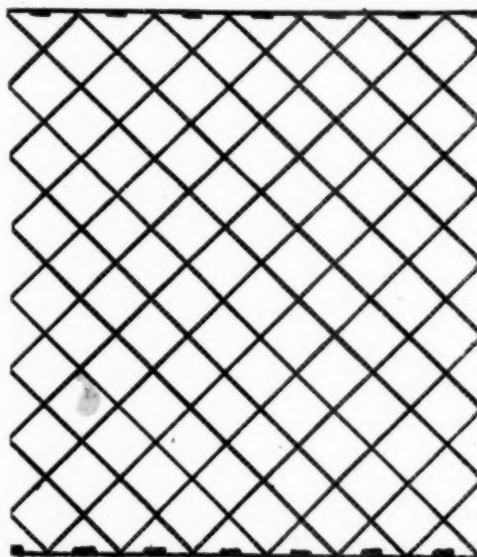
Thus, in a cellular core, both the front and the back edges of the metal are soldered joints and liable to leak. No leak, however, will there be inside of the air passages except the core has been damaged by collision, or impurities in water and liquids used in the radiator have eaten up the metal.

In other words, the cellular core is made up of thin brass or copper plates, all from 2 to 6 inches wide, impressed so that two plates make a water channel closed at front and back; and two pairs of the plates, or two water channels, make one row of air passages.

The form of the air passages varies.

There are regular honeycomb designs, round, square, heart shapes, oblong, diamond, and star patterns. The variation is in the pattern only, not in the principle, which always is the same; i. e., two plates joined at the edges form a cell for water to pass through, and the corrugations of the plates form the variously shaped air passages.

Naturally the water channels, formed of the corrugated metal which forms the air passages, are of the same pattern.



Picture No. 2, Showing Cellular Core as It Appears in the Radiator.

Looking into the air passages of a cellular core, always the lines seen from the front or the back of the core each mark two joined metal strips. And each intersection of the lines necessarily comprises four metal thicknesses.

There are no joints in the metal plates within the core except the seamed one (one in each two strips)

on top and bottom of the core. The above illustration No. 1, showing the metal strips apart as they are within the core, visualizes well the formation of the metal, no matter what shape the corrugations.

In all cellular cores proper, which are those having no separately inserted fins or provisions for vertical air passages, the strips of metal are bent over in one of the corrugations as shown in picture 1, second and third water passages from the left, forming part of the upper bottom.

The doubled strip is joined at the other end by seam. The other in which those doubled up strips are arranged into a core is shown in the same picture. One seamed end of the doubled up metal strip forms the bottom. The next doubled-up strip comes in with the bent, not seamed, end. The next strip again is seamed, and the next is bent, and so forth.

In cellular cores, all metal strips run straight down, vertically, and not upon an angle as it would appear looking at the face of the core shown in picture 2. In the core illustrated, the shape of the corrugation is such as to produce the diamond pattern face shown.

In this core, the flow of the water is zig-zag, straight down.

All strips are joined vertically, except that they zig-zag slightly, as shown. The air passages are connected with each other vertically, and a leak in one of them will show in the entire vertical row.

(To Be Continued.)

Dieckmann's New Discount Sheet Is Now Available.

The new Dealer's Discount Sheet No. 211171 on elbows and shoes of the Ferdinand Dieckmann Company, Cincinnati, Ohio, is now available.

On galvanized and terne steel, plain round, and round corrugated elbows and shoes, the discounts range from 65 per cent on 29 gauge to 15 per cent on 24 gauge.

Discounts on round apply on size 2 inches to 6 inches inclusive.

Freight is allowed on 15 dozen or more to all points where the freight rate does not exceed \$1.00 per 100 pounds.

Interested dealers should write for this discount sheet to Ferdinand Dieckmann Company, Post Office Station B, Cincinnati, Ohio.

Sums Up Disadvantages of Terra Cotta Blocks.

Sheet metal contractors who specialize in cornice work and who have to compete with terra cotta contractors, will find arguments on their side in the following summary of the disadvantages of terra cotta blocks, taken from *Stone*, a trade journal entirely outside the sheet metal field:

"In building work where terra cotta construction has been employed repairs are frequent, extensive and costly.

"Falling of pieces of terra cotta has resulted in serious injuries to pedestrians.

"City authorities now insisting on rigid inspection of

such structures, and compelling replacement of defective pieces.

"Entire front of Edison Commonwealth Building, Chicago, recently repaired.

"Nature of terra cotta requires use of small pieces, destroying unity of design and appearance of strength.

"Although moulded accurately the clay shrinks and warps when burned, so that joints are wide and uneven.

"Patching of spalled or cracked pieces give an unpleasant contrast.

"No salvage value after a fire."

Illustrates Cooperation by an Unusual Story.

At the recent convention of hardware jobbers in Atlantic City, New Jersey, William B. Price, chief chemist and metallurgist of the Scovill Manufacturing Company, Waterbury, Connecticut, spoke on the vital need of cooperation in the copper and brass industry.

In the course of his highly instructive address, he said that cooperation is the ability to organize, to get together.

"This cooperation," he said, "should be founded on a sane basis and the following story will illustrate this:

"A visitor to a State Asylum for the insane was walking over the grounds half a mile from the main building when he came across an attendant in charge of twenty patients.

"This attendant was a small man, while many of the patients were big men.

"The comparison arousing the visitor's curiosity, he joined the attendant in a stroll and, among other questions, he asked,

"What is to prevent those men getting together and over-powering you; you admit that you are unarmed and there is no help within a mile?"

"The attendant smiled and replied, 'Why, if those men could get together with anybody or anything they wouldn't be here.'

"You must get together with the other fellow."

Gets Trade-Mark Registered in Patent Office.

The F. H. Lawson Company, Cincinnati, Ohio, have secured United States Patent Office registration under number

141,072, for the

LAWCO

141,072.)

trade-mark shown in the accompanying illustration. The

particular description of goods to which it applies is pieced and stamped tinware, japanned and galvanized ware, sheet metal products, such as ash cans, garbage pails, oil cans, gasoline cans, auto radiator filling cans, strainer pails and waste baskets. Application for registration was filed December 14, 1920, and the Company claims the use of this trade-mark since August 22, 1912.

Be Careful in the Wording of Collection Letters.

Writing in *System*, B. W. Griffin warns against improper wording in the use of collection letters. He says:

Do not threaten in a collection letter. Collection letters should be politic, persuasive, strong and alive.

Most collection letters go immediately into the waste basket because they are all too much alike to be interesting and by their idle threats they rasp on feelings already sensitive about overdue obligations.

The language of letters should be simple, personal and adapted to the man to whom they are addressed.

The ending of the letter should cap the climax, as in the following sentences used by a bank:

"Your August note has not been paid yet. What are you going to do about it? Or is the next move ours?" "Have you mailed your \$500 note or must we bring suit?"

To collect money be determined and not merely write something that sounds determined.

A pleasant, sometimes a humorous, but never a sarcastic, letter is the kind to write.

Make the appeal direct and personal. Above all, use imagination.

Trade-Mark Is Registered for Rolled Steel Sheets.

Under number 148,038, United States Patent Office registration has been granted to The Superior Sheet



Steel Company, Louisville, Ohio, for the trade-mark here-with reproduced. The particular description of goods to which it applies is rolled steel sheets having a copper content.

Application

for registration was filed May 21, 1921, and the Company claims use of this trade-mark since April 22, 1921.

Notes and Queries.

"Universal" Furnace.

From G. A. Dawson, Rolfe, Iowa.

Kindly inform me who manufactures the "Universal" furnace.

Ans.—Cribben and Sexton Company, 680 North Sacramento Boulevard, Chicago, Illinois.

Small Electric Blowers.

From Charles Horn, 323½ East Mercury Street, Butte, Montana.

Please advise me who makes small blowers that can be used with electric power.

Ans.—Walworth Run Foundry Company, Cleve-

land, Ohio; American Blower Company, 1400 Russell Avenue, Detroit, Michigan.

Combination Garbage and Ash Can.

From Roberts Sheet Metal and Furnace Works, 719 Collinsville Avenue, East St. Louis, Illinois.

Will you kindly advise us where we can buy a combination garbage and ash can?

Ans.—Edward Klingbeil, Cissna Park, Illinois.

Chemicals.

From Walter G. Herman, 509 East Chestnut Street, Bloomington, Illinois.

Please advise me who manufactures the following material: 1. American potash, 2. Oxychlorhydrate of tin, 3. sulphate of copper, 4. sulphate of nickel—single and double.

Ans.—1. Solvay Process Company, 332 South Michigan Avenue; Innis Speiden and Company, Incorporated, 120 West Kinzie Street; The Roessler and Hasslacher Chemical Company, 589 East Illinois Street. 2. E. H. Sargent and Company, 155 East Superior Street. 3. Goldsmith Brothers Smelting and Refining Company, 29 East Madison Street; Innis Speiden and Company, Incorporated, 120 West Kinzie Street; The Roessler and Hasslacher Chemical Company, 589 East Illinois Street. 4. Innis Speiden and Company, Incorporated, 120 West Kinzie Street; The Roessler and Hasslacher Chemical Company, 589 East Illinois Street. All of the above named firms are located in Chicago, Illinois.

Gas Burners and Valves.

From The Eureka Steel Range Company, O'Fallon, Illinois.

Will you kindly advise us who manufactures gas burners and valves for gas and combination coal and gas ranges?

Ans.—1. George M. Clark and Company, Division American Stove Company, 179 North Michigan Avenue, Chicago, Illinois. 2. McRae and Roberts Company, 227 Campbell Avenue, Detroit, Michigan; Detroit Brass Works, 331 Holden, Detroit, Michigan; H. Mueller Manufacturing Company, Decatur, Illinois; Rockford Brass Works, Rockford, Illinois.

Stamped Trimmings for Cedar Chests.

From James Wallington, Saranac, Michigan.

Where can I get stamped trimmings, such as are used on cedar clothes chests?

Ans.—Grand Rapids Brass Works, Grand Rapids, Michigan; Syracuse Ornamental Company, Syracuse, New York.

Stock Fountain Heaters.

From J. H. Wickstrom, Beresford, South Dakota.

Please tell me where I can buy heaters for stock fountains.

Ans.—Hunt, Helm, Ferris and Company, Harvard, Illinois; Nelson Manufacturing Company, Deerfield, Wisconsin; Shaw, Welsh and Company, Galesburg, Illinois; Sterling Foundry Company, Sterling, Illinois.

The ignorant, the one who ignores vital facts, depends upon chance or luck for whatever success he may have; and, in the long run, the actuarial tables assure us that there is no such thing as either chance or luck—the laws of life work with mathematical accuracy and certainty.—*Personal Efficiency.*

Weekly Report of the Markets

General Conditions in the Steel Industry. Review of Prices and Tendencies in Sheet Metals, Pig Iron, etc.

PRODUCTION OF STEEL INGOTS SHOWS INCREASE.

There are several encouraging phases in the steel market. Steel, pig iron and coke production all showed a large and increasing gain during October, but consuming demand showed a progressive falling off.

The waning demand was reflected in the sagging prices and the unfilled tonnage report of the leading interest.

After an increase of 28,740 tons on the order books of the corporation during the month of September a loss of 273,841 tons was reported during October, the unfilled tonnage standing as of October 31, at 4,286,829 tons, the lowest since January of 1915, when it stood at 4,248,571 tons.

With the exception of September the decline in orders has been steady since July of last year, when they aggregated 11,118,468 tons.

Not all of the decline the past month, however, was due to a falling off in orders inasmuch as the leading interest raised its mill output almost 14 per cent or from 33 to just under 47 per cent of capacity while shipments amounted to about 660,000 tons and exceeded those of September by about 135,000 tons.

The amount of new business booked, however, was less by approximately 140,000 tons, and totaled only 400,000 tons.

The leading interest, it is true, received some large orders during the month for shapes, plates, bars and rails, but the volume was not large enough to offset the decrease in demand for wire products, sheets and pipe.

The one encouraging feature is that in spite of the decline in demand in October the volume of new business was greater than that of any preceding month. September alone excepted, since last February.

Furthermore, the production of steel ingots during October by thirty companies representing 84.2 per cent of the country's capacity, totaled 1,616,800 tons, according to the American Iron & Steel Institute.

With the other 15 per cent operating in proportion the output for the country must have been 1,920,200 tons, an annual rate of about 23,000,000 tons, or about 44 per cent of capacity.

This compares with an annual rate of output in September of 7,350,000 tons, and in July of 12,000,000 tons.

The gain in production for the month was 36 per cent, as compared with a gain in pig iron output of 22 per cent.

Employment showed an increase also, but not near the proportion that output registered. According to the U. S. Employment Service, the gain in employment for October was 16,224, or 5.1 per cent, and of the 11 industries reporting a gain, the iron and steel

industry accounted for more than half of the total increase of 30,772.

The largest percentage of gain was in Youngstown, and amounted to 23.3 per cent, while that in Pittsburgh was only 8.8 per cent.

Steel.

Sagging, not declining, more nearly describes the price tendency of steel at the present time. Once in a while a single product will ease off a dollar a ton, while the market as a whole remains unchanged.

The general price level is not declining as much as a dollar a ton a month at present, but will in all probability continue to ease off until the reduction in freight rates is granted, when a final and real cut in steel prices will be announced, which will bring buyers into the market in a large way.

The piecemeal easing off in quotation is shown by a comparison of average composite prices.

One such composite stands this week at \$35.08 a ton, as against \$35.28 last week and \$35.46 for the month of October.

Another stands at 2.134 cents a pound, as compared with 2.163 cents last week and 2.236 cents for the second week in October.

A pig iron composite price was unchanged at \$19.97 a ton. A reduction in freight rates of about 15 per cent on or about January 1 is expected in the trade, but such a cut would amount to only about \$2 a ton in the price of finished steel products.

Copper.

Business is less active temporarily at home and abroad so far as copper is concerned, but the market continues strong.

One of the brightest spots in the industry is the larger buying of copper by brass manufacturers in the last two weeks.

Brass makers experienced quite an active demand for their manufactures, largely as a result of the increased buying by makers of hardware whose stocks had been reduced to a very low point.

Most of the large hardware makers have now covered their requirements for wire products as well as for brass for this year's shipment. Some of them have also bought for January and February needs.

In turn the brass founders and rolling mills purchased copper for shipment over the next few months in larger tonnages than for nearly a year.

This buying power has not been exhausted, but temporarily it is not being exercised further.

Wire drawers, while they have purchased some metal recently as a result of their alertness and sensitiveness to market conditions, but they have bought apparently in advance of actual needs.

Wire is bought to be put into immediate service either in the ground or elsewhere. Seldom are pur-

chases made for stock making, that is, outside of electrical equipment manufacturers. The active period for the wire makers is in the spring.

Consumers are showing more interest in first quarter, 1922, deliveries, but in view of the continued commercial and statistical strength that is being developed, producers refuse to quote farther ahead than January.

The large producers will not quote even January and are making no commitments for prompt delivery, while they will quote nothing under 13 $\frac{3}{8}$ cents for December.

The fact is that the swelling volume of demand that has been in evidence during the past few days has about absorbed all of the metal that the producers had planned to sell.

Tin.

The tin market is in such a narrow condition that if two or three of the foreign limits are sold on any day it is described as being active, and whenever there are more than two or three inquiries in the market the demand is said to be good.

Actually, there has been no really good demand on any day this month, and no actual activity beyond that which related to the in and out trading between a few concerns.

Consumers generally continue to show an amazing lack of interest, and while it may not be surprising that buyers do not care to add to their stocks before inventory taking at the end of the year, it is surprising that they are not contracting more liberally for futures.

In Chicago a fractional advance of prices took place, making pig tin now 31 $\frac{3}{4}$ cents per pound and bar tin 32 $\frac{3}{4}$ cents per pound.

Solder.

No change has taken place in the Chicago price for solder. Quotations now in effect are as follows: Warranted, 50-50, per hundred pounds, \$19.75; Commercial, 45-55, per hundred pounds, \$18.25; and Plumbers', per hundred pounds, \$17.00.

Lead.

The domestic lead market holds fairly firm with a good volume of specifying against contracts coming in right along, and producers and dealers are not pressing sales.

The feature of the week was the reduction in freight rates on both lead and zinc to 35 cents a hundred pounds from Mississippi river points to New York and which becomes effective on December 10.

This permits the Missouri smelters to again compete in the New York markets but intermediate points are ruled out.

Zinc.

There is some increase in the offerings of zinc with no corresponding increase in the demand, and in consequence the market is a little easier.

The sheet galvanizers, who have been the main stand-by of the market during the past two months, are expected to buy further tonnages in the near future, for they are not believed to be covered for more than one month ahead.

Shipments in October were over 24,000 tons, reflecting in part anxiety of sheet galvanizers to get

metal in before the threatened railroad strike.

Sheet zinc in cask lots decreased in Chicago from 11 cents per pound to 10 cents per pound. In less than cask lots, the price is now 10 $\frac{1}{4}$ to 10 $\frac{1}{2}$ cents per pound.

Sheets.

The chief thing of note in the sheet market is the weakness in prices. This weakness is due not to there being any very strong competitive feeling among the mills but is due rather to inquiry being so light all sellers having plenty of time to figure on the inquiries that come out.

The price situation is a very serious one, and it now looks decidedly that the market will soon show prices as will cause some mills to withdraw from the competition. Only in that way, apparently, will prices be stabilized. Naturally the mills most likely to take a vacation are the mills that have capital invested in sheet mills only and not in steel making departments.

Tin Plate.

The bi-monthly examination of the sales sheets for the September-October period disclosed an unchanged price for tin plate of \$5 a base box which would indicate that the recent reduction to \$4.75 a box by the leading interest was not prompted by competition, as generally supposed.

Prices of coke plates in the Chicago market have declined, ranging from 90 cents decrease on 20x28 cokes 180 pounds, to \$1.45 on IX 20x28 cokes 270 pounds.

Old Metals.

Wholesale quotations in the Chicago district which should be considered as nominal are as follows: Old steel axles, \$13.50 to \$14.00; old iron axles, \$18.50 to \$19.00; steel springs, \$13.75 to \$14.25; No. 1 wrought iron, \$12.50 to \$13.00; No. 1 cast, \$12.00 to \$12.50; all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 6 $\frac{3}{4}$ cents; light brass, 4 cents; lead 3 $\frac{1}{4}$ cents; zinc, 2 cents; cast aluminum, 9 cents.

Pig Iron.

A marked improvement has been noted in the amount of business placed in the pig iron market the past week, according to the market report of Rogers, Brown & Company, Cincinnati, Ohio.

Some of the outstanding quotations covered iron to be shipped into the Chicago territory. One consumer purchased 5,000 tons of coke foundry iron and from 1,500 to 2,000 tons of charcoal iron, for shipment next year. Another consumer in that district purchased about 1,200 tons of charcoal iron and 1,600 tons of coke iron, for shipment over the balance of 1921.

St. Louis reports the sale of 4,000 tons of basic, and 2,000 tons of the same grade was placed for shipment into Philadelphia territory.

In addition to these larger orders, there has been a fair amount of interest in small lots, running from carload up to 1,000 tons, for prompt shipment.

From 8,000 to 9,000 tons of this class of business was quietly placed in the Buffalo territory alone. There the furnaces are in such a comfortable position that prices have been advanced and are firm.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON.

Chicago Foundry ...21 00 to 22 00
Southern Fdy. No. 2.24 66 to 25 66
Lake Sup. Charcoal...31 50 to 33 50
Malleable21 00 to 22 00

FIRST QUALITY BRIGHT TIN PLATES.

	Per Box
IC 14x20 112 sheets	\$ 9 65
IX 14x20.....	11 05
IXX 14x20.....	12 30
IXXX 14x20.....	13 65
IXXXX 14x20.....	15 05
IC 20x28.....	19 30
IX 20x28.....	22 10
IXX 20x28.....	24 60
IXXX 20x28.....	27 30
IXXXX 20x28.....	30 10

COKE PLATES

Cokes, 180 lbs....	20x28 \$11 80
Cokes, 200 lbs....	20x28 12 00
Cokes, 214 lbs....	IC 20x28 12 35
Cokes, 270 lbs....	IX 20x28 14 10

BLUE ANNEALED SHEETS.

Base.....per 100 lbs. \$3 38

ONE PASS COLD ROLLED BLACK.

No. 18-20.....	per 100 lbs. \$3 95
No. 22-24.....	per 100 lbs. 4 00
No. 26.....	per 100 lbs. 4 05
No. 27.....	per 100 lbs. 4 10
No. 28.....	per 100 lbs. 4 15
No. 29.....	per 100 lbs. 4 25

GALVANIZED

No. 16.....	per 100 lbs. \$4 40
No. 18-20.....	per 100 lbs. 4 55
No. 22-24.....	per 100 lbs. 4 70
No. 26.....	per 100 lbs. 4 85
No. 27.....	per 100 lbs. 5 00
No. 28.....	per 100 lbs. 5 15
No. 30.....	per 100 lbs. 5 45

BAR SOLDER.

Warranted,	
50-50.....	per 100 lbs. \$19 75
Commercial,	
45-55.....	per 100 lbs. 18 25
Plumber's.....	per 100 lbs. 17 00

ZINC.

In Slabs\$5 15

SHEET ZINC.

Cask lots.....	10c
Less than cask lots.....	10 1/4-10 1/2c

COPPER.

Copper Sheet, mill base...\$0 20 1/4

LEAD.

American Pig.....	\$4 80
Bar.....	5 55
Sheet.	
Full coils.....	per 100 lbs. \$7 80
Cut coils.....	per 100 lbs. 8 05

TIN.

Pig tin.....	31 1/2c
Bar tin.....	32 1/2c

HARDWARE, SHEET METAL SUPPLIES, WARM AIR HEATER FITTINGS AND ACCESSORIES.

ADAMS.

Coopers'.	
Barton's.....	Net
White's.....	Net

ALARM CLOCKS.

	per doz.
Big Ben and Baby Ben...	\$28 80
America.....	13 56
Tattoo.....	28 50

AMMUNITION.

Shells, Loaded, Peters.
Loaded with Black Powder.18%
Loaded with Smokeless Powder18%

Winchester.
Smokeless Repeater Grade,
.....10 & 4%
Smokeless Leader Grade,
.....10 & 4%
Black Powder.....10 & 4%

U. M. C.

Nitro Club.....	10 & 4%
Arrow.....	10 & 4%
New Club.....	10 & 4%

Gun Wads—per 1000.

Winchester 7-8 gauge.10&7 1/2%	
" 9-10 gauge.10&7 1/2%	
" 11-28 gauge.10&7 1/2%	

Powder.

	Each
DuPont's Sporting, kegs..	\$11 25
" " 1/4 kegs	3 10
DuPont's Canisters, 1-lb..	56
" kegs..	22 00
" 1/4 kegs	5 75
" canisters	1 00

Hercules "E.C." kegs.....22 50
Hercules "Infallible," 25 can drums.....22 00
Hercules "Infallible," 10-can drums.....9 00
Hercules "E.C." and "Infallible," canisters.....1 00
Hercules W. A. 30 Cal. Rifle, canisters.....1 25
Hercules Sharpshooter Rifle, canisters.....1 25
Hercules Bullseye Revolver, canisters.....1 00

ASBESTOS.

Paper up to 1/16.....10c per lb.
Millboard 3/32 to 1/4...10 1/4c per lb.
Corrugated Paper (250 sq. ft.).....\$6.50 per 100 lbs.
Rollboard11c per lb.

AUGERS.

Boring Machine...40 @ 40&10%
Carpenter's Nut.....50%

Hollow.

Bonney's.....per doz. \$30 00

Post Hole.

Iwan's Post Hole and Well.....30 and 5%
Vaughan's, 4 to 9 in., without handles.per doz. \$14 00
Ship.
Ford's.....Net

AWLS.

Brad.	
No. 3 Handled.....	per doz. \$0 65
No. 1050 Handled.....	" 1 40
Patent ast'd, 1 to 4.....	" 85

Harness.

Common.....	per doz. \$1 05
Patent.....	" 1 00

Peg.

Shouldered.....	" 1 60
Patented.....	" 75

Scratch.

No. 18, socket	
Handled.....	per doz. \$2 50
No. 344 Goodell-Pratt, list less.....	25-40%
No. 7 Stanley.....	per doz. \$2 25

AXES.

First Quality, Single
Bitted (unhandled), 3 to 4 lb., per doz.....14 50
Good Quality, Single
Bitted, same weight, per doz.....13 00

BAGS, PAPER, NAIL.

Pounds ..	10 16 20 25
Per 1000..	\$5 00 6 50 7 50 9 00

BALANCES, SPRING.

Universal.
Slight Spring.....List less 25%
Straight.....List less 25%

BARB, WRECKING.

V. & B. No. 12.....	\$0 45
V. & B. No. 24.....	0 75
V. & B. No. 324.....	0 80
V. & B. No. 30.....	0 85
V. & B. No. 330.....	0 90

BEATERS.

	Per doz.
No. 7 Tinned Spring Wire..	\$1 10
No. 8 Spring Wire Cop- pered.....	1 50
No. 9 Preston.....	1 75

BELLS.

Call.
3-inch Nickeled Rotary Bell,
Bronzed base...per doz. \$5 50

Cow.

Kentucky33 1/2%

Door.

New Departure Automatic..Net

Rotary.

3 -in. Old Copper Bell.....	Net
3 -in. Old Copper Bell, fancy.....	Net
3 -in. Nickeled Steel Bell..	Net
3 1/4-in. Nickeled Steel Bell..	Net

Hand.

Hand Bell, polished.....	
.....	List plus 15-10%
White Metal..	List plus 15-10%
Nickel Plated.....	List plus 10%
Swiss.....	Net

Miscellaneous.

Church and School, steel alleys.....	30%
Farm, lbs..	40 50 75 100
Each.....	\$3 00 3 75 5 50 7 25

BEVELS, TEE.

Stanley's Rosewood handle, new list.....	Nets
Stanley iron handle.....	Nets

BINDING CLOTH.

Zinc.....	55%
Brass.....	40%
Brass, plated.....	60%

BITS.

Auger.
Jennings Pattern.....Net
Ford Car.....List plus 5%
Ford's Ship....." 5%
Irwin.....35%
Russell Jennings.....Plus 15%
Clark's Expansive.....33 1/2%
Steer's " Small list, \$22 00..5%
" " Large " \$26 00..5%
Irwin Car.....35%
Ford's Ship Auger pattern
Car.....List plus 5%
Center.....10%

Countersink.

No. 18 Wheeler's..	per doz. \$2 25
No. 20.....	" 3 00
American Snailhead.....	1 75
" Rose ..	" 2 00
" Flat ..	" 1 40
Mahew's Flat ..	" 1 60
" Snail ..	" 1 90

Dowel.

Russel Jennings.....plus 20%

Gimlet.

Standard Double Cut Gross \$8 40
Nail Metal Single
Cut.....Gross \$4 00—\$5 00

Reamer.

Standard Square.....	Dox. \$2 50
American Octagon....	" 2 50

Screw Driver.

No. 1 Common.....	Each 18c
No. 26 Stanley.....	Each 70c

BLADES, SAW.

Wood.

Atkins 30-in.	
Nos.	6 40 26
	\$3 90 \$9 45 \$5 40
Dixton 30-in.	
Nos.	6 86 26
	\$9 45 \$19 05 \$9 45

BLOCKS.

Wooden.....	20%
Patent.....	20%

BOARDS.

	Per doz.
26x26, wood lined.....	\$14 45
28x28, " ".....	16 95
30x30 " ".....	19 00
26x26, paper lined.....	\$ 8 15
28x28, " ".....	9 10
30x30, " ".....	10 80

Wash.

No. 760, Banner Globe (single).....	per doz. \$5 25
No. 652, Banner Globe (single).....	per doz. 6 75
No. 301, Brass King, per doz. 8 25	
No. 360, Single-Flame Pump.....	6 25

BOLTS.

Carriage, Machine, etc.
Carriage, cut thread, 1/4x6
and sizes smaller and
shorter.....60%
Carriage sizes larger and
longer than 1/4x6.....50-10%
Machine, 1/4x4 and sizes
smaller and shorter...60-10%
Machine, sizes larger and
longer than 1/4x4...50-10-5%
Steve.....70-10%

Mortise, Door.

Gem, iron.....	5%
Gem, bronze plated.....	5%

Barrel.

Cast.....	Net
Wrought.....	"
Wrought, bronzed.....	"

Flash.	
Wrought	Net
Spring.	
Wrought	"
Wrought, heavy.....	"
Square.	
Wrought	"

BOXES.	
Mail. No. 2	4 10
Per doz. \$18 00	\$23 00 \$29 00
Cast Iron.	
Per doz.	\$9 50
Mitre.	
Stanley's.....	Net Prices
Stearns, No. 2.....	per doz. \$48 00

BRACES, RATCHET.	
Goodell-Pratt No. 403.....	\$4 50
" " No. 410.....	4 80
" " No. 412.....	5 00
V. & B. No. 444 3 in.....	4 55
V. & B. No. 333 3 in.....	4 30
V. & B. No. 222 3 in.....	4 00
V. & B. No. 111 3 in.....	3 50
V. & B. No. 11 3 in.....	3 05

BURRS, RIVETING.	
Copper Burrs only...30% above list	
Tianers' Iron Burrs only.....	Net

BUTTS.	
Steel, antique copper or dull brass finish—case lots—	
3 1/2 x 3 1/2.....per dozen pairs	\$2 75
4 x 4.....	3 80
Heavy Bevel steel inside sets, case lots—	
.....per dozen sets	7 50
Steel bit keyed front door sets, each.....	1 80
Wrought brass bit keyed front door sets, each....	3 25
Cylinder front door sets, each.....	7 00

CALIPERS.	
Double	Net
Inside and Outside.....	"
Wing	"

CANS.	
Milk.	
Ohio.	
Gals. 5	8 10
Each	\$3 65 \$4 45 \$4 70
Gem.	
Gals. 5	8 10
Each	\$3 85 \$4 95 \$5 20
Jersey or Holstein.	
Gals. 5	8 10
Each	\$4 15 \$5 60 \$5 90

CAN OPENERS.	
See openers.	

CARRIERS.	
Hay.	
Diamond, Regular.....each, Nets	
Diamond, Sling.....	"

CARTRIDGES.	
See Ammunition.	

CASTERS.	
Standard—Ball Bearing,	
.....50 & 10%	
Bed	40%

Common Plate.	
Brass Wheel	15%
Iron and porcelain wheels, new list	50%
Philadelphia Plate, new list	50%
Martin's	40%

CATCHERS, GRASS.	
No. 160S.....per doz.	\$12 25
No. 165S.....	14 01

CEMENT, FURNACE.	
American Seal, 5 lb. cans, net	\$0 45
" " 10 lb. cans, " ..	90
" " 25 lb. cans, " ..	1 37
Asbestos, 5 lb. cans.....	45
Pecora, 5 lb. cans.....	45
" 10 lb. cans.....	90
" 25 lb. cans.....	1 37

CHAINS.	
Breast Chains.	
With Slide.....doz. pairs,	\$5 50
Without Slide.....	5 06
Doubleslack	9 35
With Covert Snaps	6 38

Picture Chains.	
Light brass, 3 ft., per doz.	1 25
Heavy brass, 3 ft.	1 75

Sash Chain. (Morton's)	
Steel, per 100 ft.	
0	\$2 50
2	3 10
1	3 60

Champion Metal.	
0R	5 40
2R	5 60
1R	7 75
Champion Metal.—Extra Heavy.	
1H	\$9 50

Cable Sash Chains.	
Steel.....List Net Plus 15%	
CHALK, CARPENTERS'.	
Blue	per gro. \$2 00
Red	2 00
White	1 80
Common White School	
Crayon	0 30

CHIMNEY TOPS.	
In bags.....per bag	\$1 80
CHECKS, DOOR.	
Corbin	Net list
Russwin	Net list

CHISELS.	
Cold.	
Good quality, 1/2 in., each	\$0 44
1/4 in.,	0 28
Diamond Point.	
V. & B. No. 15, 1/4 in.....	0 23
V. & B. No. 15, 1/2 in.....	0 48

FIRMER BEVELLED.	
Berg's (Swedish).	
1/2-inch.....per doz.,	\$ 4 45
1 - "	7 15
1 1/2 - "	10 15
2 - "	17 15
2 1/2 - "	26 95

Round Nose.	
V. & B. No. 65, 1/4 in.....	0 33
V. & B. No. 65, 1/2 in.....	0 44

SOCKET FIRMER.	
Berg's (Swedish).	
1/2-inch.....per doz.,	\$11 95
1 - "	16 75
1 1/2 - "	23 95
2 - "	35 95

Cape.	
V. & B. No. 50, 1/4 in.....	0 29
V. & B. No. 50, 1/2 in.....	0 64

CHUCKS, DRILL.	
Goodell's, for Goodell's Screw Drivers.....List less 35-40%	
Yankee, for Yankee Screw Drivers	\$5 00

CHURNS.	
Anti-Bent Wood,	
Gal. 5	7 10
Each	\$3 00 4 60 4 85
Belle, Barrel.....65 & 7 1/2%	
Common Dash,	
Gal. 5	7
Per doz.....	\$17 00 19 00

Adjustable.	
Martin's	30%
No. 63, Screw.....	30%

Cabinet.	
Screw	20%
Carpenters'.	
Steel Bar...List price plus 20%	
Carriage Makers'.	
2 1/2-inch.....per doz.	\$ 7 00
5 - "	14 00
8 - "	28 00
12 - "	42 00

CLAMPS.	
Quilt Frame.	
No. 30, Ball and Socket,	
2 1/2-in. head...per gross	\$13 00
No. 50 Ball and Socket,	
3 1/2-in. head...per gross	14 50

Hose.	
Sherman's, brass, 1/4-inch,	
per doz.....	\$0 43
Double, brass, 1/4-inch, per doz.....	1 20

Saw Filers.	
Wentworth's, No. 1, \$12.50; No. 2, \$18.35; No. 3, \$16.35.	

CLAWS, TACK.	
Wood hdl. No. 10...per doz.	\$1 15
Forged steel, wood hdl. "	3 15
Solid steel	3 25
Giant	50

CLEAVERS.	
Family.	
Beatty's,	
inch .. 7	3 9 10
Per doz.....	\$25 10 27 50 30 50 33 50

CLEAVES.	
Malleable	10c lb.

CLIPPERS.	
Bolt (Carolus).	
No. 0.....	\$2 50
No. 1.....	3 25
No. 3.....	4 25

CLIPS.	
Axle	65@5%

Damper.	
Standard	per doz. 70c
Troy	38c

Hame	
	50c

COLLARS, STOVE PIPE.	
Lacquered.	
Inches	5 6 7
Fancy pattern,	
per doz.....	65c 75c \$1 00

COMPASSES.	
Carpenters'	15%

COPPERS—Soldering.	
Pointed Roofing.	
3 lb. and heavier....per lb.	40c
2 lb.....	48c
2 1/2 lb.....	45c
1 1/2 lb.....	55c
1 lb.....	60c

CORD.	
Picture.	
White Wire.....	60 & 5%
Sash.	
Spot, No. 7.....per lb.	65c
Common, No. 7.....	40c

COTTERS, SPRING.	
All sizes.....	87 1/2%

COUPLINGS, HOSE.	
Brass.....per doz.	\$2 25

CRADLES, GRAIN.	
Morgan's Grapevine.....per doz.	\$45 00

CUT-OFFS.	
Standard gauge.....	35%
26 gauge.....	20%

CUTTERS.	
Glass.	
Red Devil.....	Net

Meat.	
Enterprise—Nos. 5	10 12
Each	\$2 50 \$4 25 \$3 75
"	\$6 50 \$8 50

Pipe.	
Saunders, Nos. 1	2 3
Each	\$1 85 2 75 6 75

Slaw and Kraut.	
4-knife Kraut.....	\$20 00-55 00
3-knife Kraut,	
8x27 in.	13 00-18 00
1-knife Slaw.....	2 50
2-knife Slaw.....	3 00
Washer	11 00

DAMPERS, STOVE PIPE.	
Diamond.	
6-inch.....per doz.	\$1 50

DIGGERS.	
Post Hole.	
Eureka.....per doz.	\$15 75
Iwan's Split Handle (Eureka)	
4-ft. Handle...per doz.	15 00
7-ft. Handle...per doz.	20 00
Iwan's Hercules pattern, per doz.....	18 00
Dividers, Wing	25%

DRILLS.	
Bench.	
Blacksmiths' Twist (New List)	40%

Breast.	
Millers Falls No. 12, per doz.	\$52 50
Millers Falls No. 112, per doz.	32 00

Hand.	
Goodell's Automatic.	
No. 01.....each	\$1 00
No. 03.....	2 00
Goodell-Pratt No. 4 1/2, each	3 00
Goodell-Pratt No. 379, "	4 00

Reciprocating.	
Goodell's	3 20

DRIVERS, SCREW.	
Standard	
Lock Ferrule	Net
Clark's Interchangeable....	"
Goodell's Spiral.....	"
Yankee Ratchet	"
" Spiral	"

EAVES TROUGH.	
75-10% off Standard List.	
Milcor	Net

ELBOWS—Conductor Pipe.	
Galvanized Steel, Tin and Terna.	
Plain Round or Round Corrugated.	
2 to 6 inch, Std. gauge....60-10-5%	
2 to 6 inch, 26 gauge.....40-10-5%	
2 to 6 inch, 24 gauge.....15-10-5%	
Milcor	Net

Square Corrugated.	
Standard gauge.....	45-10-5%
26 gauge.....	30-10-5%
Milcor	Net

ELBOWS—Stove Pipe.	
1-piece Corrugated, Uniform.	
Doz.	
5-inch	\$1 50
6-inch	1 80
7-inch	2 10
Uniform, Collar Adjustable.	
Doz.	
5-inch	\$1 00
6-inch	2 00
7-inch	2 50

ENAMEL.	
Per doz.	
Black Silk Air Drying.	
No. 1, 1/4 pt. can with brush	\$1 95
No. 2, 1 pt. can with brush	3 00
Wire Screen Enamel.	
Black Silk (Black only).	
Per doz.	
1/2 pt. friction top can....	\$2 00
1 pt. friction top can.....	3 00
1 qt. friction top can....	5 40

FACES, WOOD.	
50% off list.	

FASTENERS, STORM SASH.	
Shroeder's	per doz. \$1 50
Sensible	2 00

FENCING.	
Lawn fence, single space,	
36-inch	\$ 9 13
Lawn fence, single space,	
42-inch	10 30
Lawn fence, double space,	
36-inch	12 54
Lawn fence, double space,	
42-inch	13 79
Field fence, 36-inch, No. 10 top and bottom 12 filling	26 50
Same, 6 filling.....	33 53
Field fence, 32-inch, No. 10 top and bottom 12 filling	30 84
Same, 6 filling.....	39 43

FILES AND RASPS.	
Heller's (American)	60-5%
American	60-5%
Arcade	50-10%
Black Diamond.....	50-5%
Eagle	50-10%
Great Western.....	50-10%
Kearney & Foot.....	50-10%
McClellan	50-10%
Nicholson	50-10%
Simonds	60%
J. Barton Smith.....	50-10-5%
X F	Net List

FIRE POTS.	
Clayton & Lambert's—	
each	\$4 00@5 00
Gate City.....each	6 25
Gem	each \$6 75@ 8 50

GALVANIZED WARE.		HANDLES.		Screw Hook and Strap.		KETTLES.	
Per doz.		Agricultural Tool.		6 to 12 in....per 100 lbs. \$7 75		Brass15%	
Pails (Competition), 8-qt....	\$2 00	4½-inch, plain....per doz. \$3 50		14 to 20 in...." " 7 50		Cauldron40&5%	
10-qt.	2 35	Auger.		22 to 36 in...." " 7 25		Copperper lb. 27	
12-qt.	2 50	Common Assorted, per doz. \$0 75		Screw Hook and Eye.		Maslin40&10%	
14-qt.	2 80	Pratt's Adjustable, Nos.		¼ in....per doz. pair \$2 00		Sugar50%	
Wash tubs, No. 1.....	6 50	1 & 2, per doz..... 6 00		½ in...." " 3 50		KNIVES.	
No. 2.....	7 50	Ives' Adjustable...per set 1 35		½ in...." " 5 00		Beet Topping.	
No. 3.....	8 50	Axe.		HOES.		Clyde, 9-in. Scimitar Blade,	
GARAGE DOOR HARDWARE.		Hickory, No. 1....per doz. 4 00		GardenNet		doz.25%	
StanleyAll net		Hickory, No. 2...." 2 50		HOOKS.		California25%	
GAUGES.		1st quality, second growth 6 00		Awning, No. 60.....Net		Butcher.	
Cream Fall.		Special white, 2nd growth. 5 00		Belt.		Beechwood Handles, 6-inch	
Fairmountper doz. \$3 75		Chisel.		Brown's70&5%		blade25%	
Marking, Mortise, etc.....		Hickory, Tanged, Firmer,		Jones'65&5%		Beechwood Handles, 7-inch	
.....Nets		Assortedper doz. 55c		Box.		blade25%	
Wire.		Hickory, Socket Firmer,		No. 8 10 12		Beechwood Handles, 8-inch	
Disston's25%		Assortedper doz. 70c		Each\$0 29 0 77 0 86		blade25%	
GIMLETS.		Coal Pick.....40%		Bush.		Cooper's Hoop25%	
Discount.....65% and 10%		Drifting Pick.....40%		Common Axe Handle,		Corn.	
GLASS.		File, assorted.....per doz. 30c		per doz.....\$20 00		Clipper25%	
Single Strength, A and B,		Hammer and Hatchet.		Chain.		Disston's No. 2.....25%	
all sizes.....81%		No. 1, per doz.....\$0 80		Inch.. ¼ 5/16 ¾ 7/16 ½		Earle's25%	
Double Strength, A and B,		Second growth hickory, per		Pr. 100 \$7 60-8 10 9 75 11 50 12 50		Woodford25%	
all sizes.....83%		doz.1 40		Clothes Line.		Drawing.	
GLOVES.		Hay and Manure Fork, Han-		Japanned ...per doz. 35c@1 00		Standard25%	
Per doz.		dies, Strap and Ferrule...		Galvanized .." 65c@2 25		Adjustable25%	
6-oz. knit wrist gloves.....\$1 00	per doz. \$7 00		Conductor.		Barton's Carpenters'.....25%	
8-oz. knit wrist gloves.....1 20		Screw Driver.		Conductor hooks.....20-10%		Hay.	
10-oz. knit wrist gloves.....1 45		Assortedeach 6c		MilcorNet		Iwan's Solid Socket.....25%	
GLUE.		Shovel and Spade.....Net		Corn.		Heath's25%	
Bulk.		HANGERS.		Common, riveted, red, per dz. Net		Iwan's, Sickle Edge.....25%	
B Amber.....per lb. 35c		Door.		Little Giant....." "		Iwan's Imp'd Serrated.....25%	
A white....." 49c		MatchlessNet		Grass.		Hedge.	
H. S. Amber....." 32c		ReliableNet		Common Nos. 1 3 5 7		Challenge25%	
Liquid.		Richards25%		Per doz.....\$4 25 3 25 3 40 3 50		Disston's No. 1.....25%	
Army & Navy.....40%		Garage Door.		Hammock.		Mincing.	
Le Page's.....		(See Garage Door Hdw.)		With plate.....per doz. \$1 00		Common, Single25%	
List "A".....37½%		Conductor Pipe.		With screw....." 95		Common, Double25%	
List "B".....35%		Iwan's Perfection.....50%		Picture50%&50%&10%		Streeter, 4-blade25%	
List "C".....25%		Milcor Perfection.....Net		Potato and Manure.....Nets		Streeter, 6-blade25%	
GREASE, AXLE.		Eaves Trough.		HOSE.		Putty.	
Wood Boxes.		Steel hangers.....30%		Per ft.		Common25%	
Frazer'sper gro. \$13 00		Triple twist wire.....10%		¼-inch molded reel.....15c		Landers25%	
Hub Lightning.....7 50		Milcor Eclipse.....Net		¾-inch 3 ply duck.....15c		Scraping.	
Wood Pails.		Milcor Eclipse.....Net		¾-inch 4 ply duck.....17½c		Beech Handle25%	
Frazer's, 15 lb. \$1.00; 25 lb. \$1.50		Milcor Triplex.....Net		¾-inch 5 ply multiple.....13c		Lander's25%	
each.		Milcor Milwaukee.....Net		HUSKERS.		KNOBS.	
Hub Lightning, 15 lb. 90c; 25 lb.		HASPS.		Nos. B E		Door.	
\$1.21 each.		Hinge, Wrought, with staples.Net		Per doz.New Nets		Mineralper doz. \$2 00	
GRINDSTONES.		HATCHETS.		No. 59....per doz. New Nets		Porcelain2 00	
Family.		Size No. 2 extra quality		Plane.		Jet2 00	
Inches 7 8 10 12		broad\$19 00		Wood Bench...Add 10% to list		LADDERS.	
Prices on application.		Competitive Grade.....13 00 up		IRONS.		Common, per ft.....23c	
Mounted.		No. 2 Warranted Shingling 14 25		Charcoalper doz. \$11.00		Common, with Shelf, add 10c.	
Ball Bearing... 1 2 3		Competitive Forged.....9 75		Common, polished, per		IXL24c	
Prices on application.		HAY RACK BRACKETS.		100 lbs. 7 75		Challenge, 6 to 9 ft.....55c	
GUNS.		Wenzleman's No. 1		No. 70 Asbestos.....\$1 50 net		10 to 16 ft.....60c	
Iver Johnson Champion Single	per doz. sets \$18 00		No. 100 "1 75 net		LANTERNS.	
Barrel Shot Guns.....Net		Wenzleman's No. 2		Common, nickel plated.... 3 25		Per doz.	
Double Barrel, Hammerless...	per doz. sets 19 20		Mrs. Pott's,		Monarch tin, hot blast.....\$ 9 50	
HAFES, AWL.		HINGES.		No. 50 J, Enterprise, per set Nets		Diets No. 3 cold blast.....14 50	
Brad.		Blind.		No. 50 T. " " "		Best tubular9 50	
Commonper doz. \$0 35		Clark's Gravity		No. 55 J. " " "		Competition lanterns No. 6	
Peg.		No. 1.....per set 45c		No. 50 T. " " "		tubular7 80	
Patent, plain top. " 60		No. 2....." 85c		Wagon.		LEATHER, LACE.	
Patent, leather top " 80		Gate.		Richard's No. 1..per doz. \$15 50		Rawhide ¼-inch100 ft. \$2 60	
Sewing.		Clarks..... 1 2 3		IRON.		¾-inch" 4 40	
Common 34		Hgs & Ltch, ea. 85c 1 10 2 40		Charcoalper doz. \$11.00		LEATHERS, PUMP.	
Patent 55		Hinges only—		Common, polished, per		Valve and Plunger.....Net	
HAMMERS, HANDLED.		Upper\$1 25		100 lbs. 7 75		LEVELS.	
Each, net		Lower1 55		No. 70 Asbestos.....\$1 50 net		Disston, No. 25 Asst.....\$22 65	
Blacksmiths, Hand, No. 9.		Latches only—		No. 100 "1 75 net		" No. 15, 30 in. each 1 83	
26 oz.\$1 35		No. 1.....each 23c		Common, nickel plated.... 3 25		" No. 23, 24 in. each 2 40	
Engineers', No. 1, 26 oz.....1 35		No. 2....." 23c		Mrs. Pott's,		" Shafting, 6 in. 19 50	
Farriers', No. 7, 7 oz.....1 41		Screen Door.		No. 50 J, Enterprise, per set Nets		" No. 1 Asst..... 5 75	
Machinists', No. 1, 7 oz.....1 08		1751—3x3doz. \$2 00		No. 55 J. " " "		" No. 9 Asst..... 12 40	
Nail.		1752—2½x2½ 1 95		No. 50 T. " " "		" 24-36 in.each 1 03	
Vanadium, No. 4½, 16 oz.		Spring.		No. 55 T. " " "		" 28-30 in.each 1 09	
each1 58		Chicago Add 10% to list		JACKS.		LIFTERS.	
V. & B., No. 11½, 16 oz.		Gem25%		Richard's No. 1..per doz. \$15 50		Stove Cover.	
each1 13		Matchless40%		Oliver,		Copperedper gro. \$6 00	
Garden City, No. 11½, 16		New Idea.....per gross \$6 90		Nos. 0 00		Alaska 4 75	
oz., each94		Wrought Iron.		Each\$0 60 \$0 80		Transom.	
Tinner's Riveting, No. 1, 3		Per 100 pairs with screws:		Standard,		Payson's55%	
oz., each28		Light Strap Hinges, No. 3 \$12 00		Nos. 1 2		LINES.	
Shoe, Steel, No. 1, 13 oz.,		Heavy Strap Hinges, No. 4 15 75		Each\$0 60 \$1 00		Juteper lb. 25c	
each73		Light T Hinges...No. 3 12 10		Big Lift.....40%		Sisal 35c	
Tack.		Heavy T Hinges...No. 4 20 00		Tiger40%		Cotton 35c	
Magnetic.		Extra Heavy T Hinges,				Braided Cotton..... 53c	
No. 5, each.....1 00		No. 4 21 50					
HAMMERS, HEAVY.							
Farriers'20%							
Masons'.							
Single and Double Face.....50%							

LINING, STOVE. Bricksper crate 42c	NIPPERS. End Cutting. Berg's (Swedish) In. 5 6 Per dozen.....\$12 60 15 20	PARERS. Apple. Goodell'sper doz. \$10 80 Turntable " 11 40 White Mountain " 8 40 Reading No. 78 " 11 40	Lineman's Side Cutting. Berg's (Swedish), In. 6 7 8 Blk. Pol. Face, doz.\$10 70 20 00 23 35
LOCKS. Barn Door. No. 60 Stearns...per doz. \$12 00 No. 80 " " " 24 00	End and Diagonal Cutting. Berg's (Swedish) In. 5 6 Per dozen.....\$10 05 13 00	Potato. Goodell's Saratoga, 10 1/2 in., doz. 6 50 Goodell's Saratoga, 5 in., doz. 5 50	Long Nose Side Cutting. Berg's (Swedish) In. 5 6 Blk. Pol. Face, doz. \$12 25 15 20
MACHINES. Riveting. Stearns No. 1...per doz. \$16 00	HOOF. Heller's40&10% V. & B., No. 52, each.....\$2 25	PICKS. Adze Eye Ore.....22 1/2% Drifting and Poll Picks.....22 1/2% Plumbs, Railroad22 1/2% Surface22 1/2%	Flat and Round Nose. Berg's (Swedish) Flat, In. 4 6 8 Blk. Pol. Face, Doz.\$8 90 13 35 19 65
Tenoning. No. 50 Pease's Spoke, each \$16 00	NOZZLES. Hose. Magicper doz. \$9 50 Diamond " 5 75	PINCERS. Carpenters', cast steel, No. 6 8 10 12 Each \$0 56 \$0 72 \$0 93 \$1 08 Blacksmiths', No. 10.....\$0 96 Heller'sList plus 10%	Berg's (Swedish) Round, In. 4 6 8 Blk. Pol. Face Doz. \$11 15 14 20 23 35
MAIL BOXES. See Boxes.	NUTS, HOT PRESSED. Square Tapped. \$2.41 off per 100 lbs.	PINS. Clothes. Common, per box of 5 gro. \$0 95	POINTS, GLAZIERS. No. 1, 2 and 3.....per doz. 75c
MALLETS. Carpenters'. Fibre Head, No. 2 per doz. \$16 50 " No. 3 " 19 50 " No. 4 " 23 50	Hexagon Tapped. \$2.41 off per 100 lbs.	PIPE. Conductor. Plain Round and Round Corrugated. 29 Gauge55% 28 "45% 26 "35% 24 "10%	POINTERS, SPOKE. Stearns' No. 1.....per doz. \$10 00 " No. 2..... " 12 00
Round Hickoryper doz. \$3 00—5 00 Round Lig-numvitae " 6 25—10 50 Square Hickory " 3 50—5 50 Square Lig-numvitae " 8 00—12 00	OILERS. Chase Pattern. Brass and Copper.....10% Zinc20%	PICKET. Fluted, 15-in.....per doz. \$1 10 Fluted, 21-in..... " 1 60 Spiral " 1 90	POKERS, STOVE. Wrt Steel, str't or bent,per doz. \$0 75 Nickel Plated, coil han's " 1 10
TINNERS'. Hickoryper doz. \$2 25	Railroad. Coppered33 1/2% Steel. Copper Plated50-10-5%	PLAIN ROUND AND ROUND CORRUGATED. 29 Gauge40% 28 "40% 26 "30% 24 "10%	POLISH. Metal. Per doz. Black Silk No. 60—6 oz. \$ 1 50 Black Silk No. 70—1 pt. 3 00 Black Silk No. 80—1 qt. 5 00 Black Silk No. 90—1 gal. 12 00
MATS. Door. National Rigid.....5&10&5% Acme Steel Flexible.....50%	Can. Delmonicoper doz. \$1 30 Never Slip..... " 65	Galvanized Toncan Metal, Genuine O. H. Iron, Lyonmore Metal, Charcoal Iron and Keystone C. B. Plain Round and Round Corrugated. 29 Gauge40% 28 "35% 26 "30% 24 "10%	Stove. Per doz. Black Silk No. 5 paste, 5 oz. can\$ 1 20 Black Silk No. 10 paste, 1/2 lb. can..... 2 00 Black Silk No. 10A paste, (fireproof), 1 1/2 lb. can. 1 50 Black Silk No. 15 paste, 1 lb. can 3 00 Black Silk No. 20 paste, 5 lb. can..... 11 40 Black Silk No. 6 liquid, 6 oz. can 1 25 Black Silk No. 8 liquid, 1/2 pt. can..... 2 00 Black Silk No. 12 liquid, 1 pt. can..... 3 00
MAULS. Wood Choppers'. Lake Superior & Oregon pat.40&5%	Crate. V. & B. ...per doz. \$7 25-11 00	Standard Gauge. Crated and nested.....60-25% Crated, not nested.....60-20%	PRESSES, FRUIT AND JELLY Enterprise Manufacturing Co. 25%
MEASURES. Galvanized, doz.....Nets Japanned, doz.....Nets	OUTFITS, COBBLING. Combinationper doz. \$16 00 Economy " 8 50 Family " 14 50	PORTICO ELBOWS. Standard Gauge Conductor Pipe, plain or corrugated. Not Nested60 & 10% Nested solid60 & 15%	PRUNERS. Daston's Pole.....per doz. \$18 00 Water's Improved, per doz. 60%
MITRES. Galvanized steel mitres, end caps, end pieces, outlets....30% MilcorNet	FAILS. Cream. 14-qt. without gaugeper doz. \$9 50 18-qt. without gauge,per doz. 11 00 20-qt. without gauge,per doz. 11 75	Stock. Galv. qts. 14 16 18 20 Per doz. \$3 75 10 75 12 75 14 50	PULLERS. Cork. Daisyeach \$3 10 Phoenix " 1 40 Quick and Easy..... " 2 70
MOPS. Cotton. Star (Cut Ends). Pounds 12' 15' 18' 24'-3-oz. Per doz. \$4 00 4 35 5 50 7 00 Enterprise16% Parker50&5%	Water. Galv. qts. 10 12 14 Per doz. \$5 75 6 50 7 25	Stove. Per 100 joints. 26 gauge, 5 inch E. C. nested\$14 50 26 gauge, 6 inch E. C. nested 15 50 26 gauge, 7 inch E. C. nested 17 50 28 gauge, 5 inch E. C. nested 12 50 28 gauge, 6 inch E. C. nested 13 50 28 gauge, 7 inch E. C. nested 15 50 30 gauge, 5 inch E. C. nested 11 00 30 gauge, 6 inch E. C. nested 12 00 30 gauge, 7 inch E. C. nested 14 00 T-Joint Made up. 6-inchper 100 \$40 00	PULLEYS. Awning—Jap'd10% Clothes Line10%
MEASURES. Galvanized, doz.....Nets Japanned, doz.....Nets	WOOD. Cable, 2-Hoop...per doz. Nets Cable, 3-Hoop... " Nets Cedar, 3-Hoop, brass " Nets	FURNACE PIPE. Double Wall Pipe and Fittings Single Wall Pipe, Round Pipe Fittings40% Galvanized and Back Iron Pipe, Shoes, etc.....40% Milcor, galvanized.....Net	Hay Fork. Iron Wheel, 5-in...per doz. \$2 50 Wood Wheel, 6-in. " 2 65 Wood Wheel, 6-in., pass knot " 3 00
MAULS. Wood Choppers'. Lake Superior & Oregon pat.40&5%	PANS. DrippingNet Fry. CommonNets Acme "	PLANES. Stanley Iron Bench.....Net	Sash. CommonNet Common-Sense, 2-in.....Net Empire Pattern, 2-in.....Net IdealNet SteelNet
MITRES. Galvanized steel mitres, end caps, end pieces, outlets....30% MilcorNet	Roasting. Paxton, Nos. 1 2 3 4 Per doz.Nets Neverburn " Savory, No. 200...per doz. \$8 40	PLIERS. V. & B. No. 6.....each \$0 57 " No. 7 Gas..... 0 60 " Double Duty 106.. 0 56 " Nut No. 3..... 0 64	PUMPS. Spray. Midget Junior...per doz. \$3 75 New Misty " 6 00 Crescent " 6 50
MOPS. Cotton. Star (Cut Ends). Pounds 12' 15' 18' 24'-3-oz. Per doz. \$4 00 4 35 5 50 7 00 Enterprise16% Parker50&5%	Roofing. Per square. Major, 1-ply\$1 33 " 2-ply 2 24 " 3-ply 2 65 Red Rosin.....per ton \$111 45	SAWING. Major, 1-ply\$1 33 " 2-ply 2 24 " 3-ply 2 65 Red Rosin.....per ton \$111 45	PUNCHES. No. 22.....per doz. \$3 00 Machineper lb. 25 Saddlers'. Common...per doz. \$1 50 to \$5 00 Revolving Spring. Stearns, No. 10...per doz. \$ 8 00 " No. 40.. " 16 00 " No. 60.. " 19 00 Parker Metal Punch No. OXeach \$7 00 Whitney's Ball-bearing...Prices on application
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NETTING, POULTRY. Galvanized before weaving...50% Galvanized after weaving...40%	NETTING, POULTRY. Galvanized before weaving...50% Galvanized after weaving...40%	NETTING, POULTRY. Galvanized before weaving...50% Galvanized after weaving...40%	NETTING, POULTRY. Galvanized before weaving...50% Galvanized after weaving...40%

PUTTY. Commercial Putty, 100-lb. kits\$4 75	SAWS. Butchers'. Atkins No. 2, 14-in.\$12 25 " No. 2, 18-in. 13 75 " No. 2, 22-in. 15 25 " No. 7, 18-in. 17 25 " No. 7, 20-in. 19 25 " No. 7, 24-in. 21 40 Disston's No. 2, 14-in. 13 20 " No. 2, 18-in. 15 20 " No. 2, 22-in. 17 25 " No. 7, 18-in. 19 25 " No. 7, 20-in. 21 25 " No. 7, 24-in. 23 25 " No. 7, 28-in. 26 00	SETS. Nail. Square head.....per doz. 1 24 Cup point, knurled " 1 75	SNAPS, HARNESS. Covered SpringAdd 30% Judd's Pattern Add 25 1-6% to list
RAIL. Barn Door. Matchless, 1-in. 5c Matchless, 1 1/4-in. 7c Storm King 5c	Compass. Atkins No. 2, 10-in.\$ 4 95 " No. 10, 10-in. 5 10 " Blades, No. 2, 10 in. 3 25 " No. 2, 10-in. 3 00 Disston's No. 20 Jackson. 4 00 " No. 40 Sampson. 3 50 " No. 2 & 77, 10-in. 6 05 " No. 9, 10-in. 6 30	Rivet. Farmers'per doz. 2 50 Tinners' 3-4 5 75 " 60-0 8 75	SNATHS. Double Ring, Bush..per doz. \$9 75 Patent Loop, Bush.. " 10 00 Patent Loop, Grass. " 8 75
SLIDING DOOR. Bronzed wrought iron, per ft. 8 1/4c	Cross-Cut. Atkins No. 221, 4-ft. 2 70 " No. 221, 6-ft. 4 10 " No. 221, 8-ft. 5 45 Disston's No. 289, 4-ft. 6 15 " No. 289, 8-ft. 10 65	Saw. Atkins No. 10.....per doz. \$3 80 " No. 12..... " 6 20 Disston's Monarch No. 3..... " 9 90 Disston's Monarch No. 12..... " 13 20 Leach's " 80 Nash's Hand " 3 15 Nash's X-cut " 4 20 Stillman's Lever.. " 1 30 Stillman's X-cut.. " 2 50 Whiting Pattern, " 7 50 No. 21..... Eccentric Anvil, Hand No. 395, N. P. Morrill Pat- tern " 14 50	SNIPS, TINNERS'. Clever Leaf40&10% National40&10% Star50% MilcorNet
RAKES. Garden. Per doz. Steel, Bow, 12-in. Teeth...\$2 50 Steel, Bow, 14-inch " ... 3 25 Malleable Iron, 12-in. " ... 4 75 Malleable Iron, 14-in. " ... 5 00	Flooring. Atkins No. 95, 16-in. 19 95 " No. 95, 20-in. 21 85 Disston's D19, 16-in. 24 50 " D19, 20-in. 31 00	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINGS, DOOR. Perfect. Nos. 2 3 4 5 6 7 Per doz. 45c 50c 55c 65c 80c 90c
May. Wood, 10 Teeth.....\$4 00	Hand and Rip. Atkins No. 54, 20-in. 17 75 " No. 54, 24-in. 22 10 " No. 53, 16-in. 16 45 " No. 53, 20-in. 20 80 " No. 53, 24-in. 24 20 " No. 53, 28-in. 28 60 " No. 53, 30-in. 31 95 Disston's No. 7, 20-in. 19 20 " No. 7, 22-in. 25 40 " No. 8, 16-in. 17 55 " No. 8, 20-in. 20 75 " No. 8, 24-in. 24 40 " No. 8, 28-in. 29 50 " No. 8, 30-in. 32 95	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
LAWN. 20 Teethper doz. 5 50	Keyhole. Atkins No. 1, complete... 2 80 " No. 2, complete... 3 25 Disston's No. 5, complete 3 25 " No. 10, complete 3 70 " No. 95, complete 5 75	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
RAZORS—SAFETY. Gilletteper doz. \$45 00 Auto Strop 45 00 Gem 3 40 Gem (3 doz. lots) .. 3 00 Ever Ready 3 40 Ever Ready (3 doz. lots) 3 00	RAZORS—STRAIGHT. Star (Honing)50%	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
RAZOR STROPS. Star (Honing)50%	RAZOR STROPS. Star (Honing)50%	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
REGISTERS. Cast Iron20% Steel and Semi-Steel...30% Baseboard30% Adjustable Ceiling Ventilators 80%	REGISTERS. Cast Iron20% Steel and Semi-Steel...30% Baseboard30% Adjustable Ceiling Ventilators 80%	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
REGISTER FACES. Japanned, Bronzed and Plated. 4x 6 to 14x14.....30% 14x14 to 38x42.....50%	REGISTER FACES. Japanned, Bronzed and Plated. 4x 6 to 14x14.....30% 14x14 to 38x42.....50%	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
REVOLVERS. Iver Johnson Safety Automatic HammerNet Hammerless I. J. Model 199....."	REVOLVERS. Iver Johnson Safety Automatic HammerNet Hammerless I. J. Model 199....."	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
RIDGE ROLL. Galvanized. Crated70-25% Wired70-25% MilcorNet	RIDGE ROLL. Galvanized. Crated70-25% Wired70-25% MilcorNet	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
RINGS AND RINGERS. Fall. Copper2 1/4-in. 2-in. Per doz.\$2 40 \$2 65 Rea's Improved Self- Piercing copper, doz. 3 40 Steel, per doz. 1 50 1 80	RINGS AND RINGERS. Fall. Copper2 1/4-in. 2-in. Per doz.\$2 40 \$2 65 Rea's Improved Self- Piercing copper, doz. 3 40 Steel, per doz. 1 50 1 80	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
MOG. Blair's Rings.....per doz. \$ 75 Blair's Ringers... " 1 00 Brown's Ringers... " 72 Brown's Ringers... " 1 00 Hill's Ringers..... " 1 00 Hill's Ring, boxes " 72 Major Rings..... " 60 Perfect Ringers... " 1 50 Wolverine Rings... " 1 10 Wolverine Ringers " 1 10	MOG. Blair's Rings.....per doz. \$ 75 Blair's Ringers... " 1 00 Brown's Ringers... " 72 Brown's Ringers... " 1 00 Hill's Ringers..... " 1 00 Hill's Ring, boxes " 72 Major Rings..... " 60 Perfect Ringers... " 1 50 Wolverine Rings... " 1 10 Wolverine Ringers " 1 10	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
FRUIT JAR. Whiteper lb. 30	FRUIT JAR. Whiteper lb. 30	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
KEY. Split, round.....per doz. \$9 17 Split, square..... " 32 Ball, round..... " 40	KEY. Split, round.....per doz. \$9 17 Split, square..... " 32 Ball, round..... " 40	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
RIVETS. Copper Belt.....Add 15% to list Coppered Iron30% Tinners'30%	RIVETS. Copper Belt.....Add 15% to list Coppered Iron30% Tinners'30%	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Slotted Clinch per doz. 60@1 10	Slotted Clinch per doz. 60@1 10	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Tabular. Nos. 1 and 2 assorted sizes, 50 in box.....doz. 75c Nos. 1 and 2 assorted sizes, 10 in box.....doz. 1 40	Tabular. Nos. 1 and 2 assorted sizes, 50 in box.....doz. 75c Nos. 1 and 2 assorted sizes, 10 in box.....doz. 1 40	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
ROPE. Cotton. 3/4, 5-16 in. Com. on reels, per lb. 80c 3/4, 5-16 in. Com. in coils, per lb. 80c	ROPE. Cotton. 3/4, 5-16 in. Com. on reels, per lb. 80c 3/4, 5-16 in. Com. in coils, per lb. 80c	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Meal. 1st Quality, base..12 1/2c to 14 1/2c No. 211 1/2c to 13 1/2c	Meal. 1st Quality, base..12 1/2c to 14 1/2c No. 211 1/2c to 13 1/2c	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Manila. 1st quality standard brands15 1/2c to 16 1/2c No. 214 1/2c to 15 1/2c	Manila. 1st quality standard brands15 1/2c to 16 1/2c No. 214 1/2c to 15 1/2c	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Pure Manila. 1st quality, base, per lb. Hardware Grade, per lb.16 1/2c to 17 1/2c	Pure Manila. 1st quality, base, per lb. Hardware Grade, per lb.16 1/2c to 17 1/2c	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Butchers'. Atkins No. 2, 14-in.\$12 25 " No. 2, 18-in. 13 75 " No. 2, 22-in. 15 25 " No. 7, 18-in. 17 25 " No. 7, 20-in. 19 25 " No. 7, 24-in. 21 40 Disston's No. 2, 14-in. 13 20 " No. 2, 18-in. 15 20 " No. 2, 22-in. 17 25 " No. 7, 18-in. 19 25 " No. 7, 20-in. 21 25 " No. 7, 24-in. 23 25 " No. 7, 28-in. 26 00	Butchers'. Atkins No. 2, 14-in.\$12 25 " No. 2, 18-in. 13 75 " No. 2, 22-in. 15 25 " No. 7, 18-in. 17 25 " No. 7, 20-in. 19 25 " No. 7, 24-in. 21 40 Disston's No. 2, 14-in. 13 20 " No. 2, 18-in. 15 20 " No. 2, 22-in. 17 25 " No. 7, 18-in. 19 25 " No. 7, 20-in. 21 25 " No. 7, 24-in. 23 25 " No. 7, 28-in. 26 00	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Compass. Atkins No. 2, 10-in.\$ 4 95 " No. 10, 10-in. 5 10 " Blades, No. 2, 10 in. 3 25 " No. 2, 10-in. 3 00 Disston's No. 20 Jackson. 4 00 " No. 40 Sampson. 3 50 " No. 2 & 77, 10-in. 6 05 " No. 9, 10-in. 6 30	Compass. Atkins No. 2, 10-in.\$ 4 95 " No. 10, 10-in. 5 10 " Blades, No. 2, 10 in. 3 25 " No. 2, 10-in. 3 00 Disston's No. 20 Jackson. 4 00 " No. 40 Sampson. 3 50 " No. 2 & 77, 10-in. 6 05 " No. 9, 10-in. 6 30	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Cross-Cut. Atkins No. 221, 4-ft. 2 70 " No. 221, 6-ft. 4 10 " No. 221, 8-ft. 5 45 Disston's No. 289, 4-ft. 6 15 " No. 289, 8-ft. 10 65	Cross-Cut. Atkins No. 221, 4-ft. 2 70 " No. 221, 6-ft. 4 10 " No. 221, 8-ft. 5 45 Disston's No. 289, 4-ft. 6 15 " No. 289, 8-ft. 10 65	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Hand and Rip. Atkins No. 54, 20-in. 17 75 " No. 54, 24-in. 22 10 " No. 53, 16-in. 16 45 " No. 53, 20-in. 20 80 " No. 53, 24-in. 24 20 " No. 53, 28-in. 28 60 " No. 53, 30-in. 31 95 Disston's No. 7, 20-in. 19 20 " No. 7, 22-in. 25 40 " No. 8, 16-in. 17 55 " No. 8, 20-in. 20 75 " No. 8, 24-in. 24 40 " No. 8, 28-in. 29 50 " No. 8, 30-in. 32 95	Hand and Rip. Atkins No. 54, 20-in. 17 75 " No. 54, 24-in. 22 10 " No. 53, 16-in. 16 45 " No. 53, 20-in. 20 80 " No. 53, 24-in. 24 20 " No. 53, 28-in. 28 60 " No. 53, 30-in. 31 95 Disston's No. 7, 20-in. 19 20 " No. 7, 22-in. 25 40 " No. 8, 16-in. 17 55 " No. 8, 20-in. 20 75 " No. 8, 24-in. 24 40 " No. 8, 28-in. 29 50 " No. 8, 30-in. 32 95	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Keyhole. Atkins No. 1, complete... 2 80 " No. 2, complete... 3 25 Disston's No. 5, complete 3 25 " No. 10, complete 3 70 " No. 95, complete 5 75	Keyhole. Atkins No. 1, complete... 2 80 " No. 2, complete... 3 25 Disston's No. 5, complete 3 25 " No. 10, complete 3 70 " No. 95, complete 5 75	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Miter Box. Atkins No. 1, 4x20..... 29 70 " No. 1, 5x22..... 34 55 " No. 1, 6x22..... 38 35 Disston's No. 4, 4x20-in. 35 15 " No. 4, 5x22-in. 43 25 " No. 4, 6x22-in. 47 20	Miter Box. Atkins No. 1, 4x20..... 29 70 " No. 1, 5x22..... 34 55 " No. 1, 6x22..... 38 35 Disston's No. 4, 4x20-in. 35 15 " No. 4, 5x22-in. 43 25 " No. 4, 6x22-in. 47 20	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50
Pruning. Atkins No. 20, 12-in. 7 70 " No. 10, 16-in. 16 50 Disston's No. 20..... 18 75	Pruning. Atkins No. 20, 12-in. 7 70 " No. 10, 16-in. 16 50 Disston's No. 20..... 18 75	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	SPRINKLERS, LAWN. Stearns No. 1....per doz. \$11 50

STRETCHERS.

Carpet.	
Bullard's	per doz. \$3 90
Excelsior	" 5 25
Malleable Iron....	" 70
Perfection	" 6 30
King	" 4 50

Wire.

O. S. Elwood, No. 1 per doz. Nets	
O. S. Elwood, No. 2	

SWIVELS.

Malleable Iron	per lb. \$0 10
Wrought Steel	per gro. 4 50

TACKS.

Bill Posters' 6-oz., 25-lb. boxes.	
per lb.	15c
Upholsters' 6-oz., 25-lb. boxes, per lb.	15½c

TAPES, MEASURING.

Asses' Skin	List & 40%
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THERMOMETERS.

Tin Case	per doz. 80c & \$1 25
Wood Back....	" \$2 00 & 12 00
Glass	" 12 00

TIES.

Bale.	
Single Loop, carload lots	75 & 7%
Single Loop, less than ear lots	70 & 15%

TOOLS, SAW.

Dianston's Universal	10%
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TRAPS.

Game with Chains.	Per doz.
Victor No. 1	\$2 01
Onelda Jump No. 1	2 75
Newhouse No. 1	5 62

Mouse and Rat.	List per gross.
Sure Catch Mouse Traps..	\$ 3 70
Vim Mouse Traps.....	3 70
Short Stop Mouse Traps..	3 20
Wood Choker Mouse Traps, 4 hole.....	17 00
Sure Catch Rat Traps.....	15 00
Vim Rat Traps.....	14 00
Short Stop Rat Trap.....	15 00
Dead Easy Rat Traps.....	17 00
Star Rat Traps.....	50 00
Erie	54 00
Packed in One Bushel Band Stave	

Baskets.

	List per bushel.
Sure Catch Mouse Traps (360 Traps)	\$ 9 20
Short Stop Mouse Traps (360 Traps)	8 00
Sure Catch Rat Traps (54 Traps)	6 00
Short Stop Rat Traps (54 Traps)	5 60
Assorted Mouse and Rat Traps.	
	List per bushel.
Sure Catch (216 Mouse Traps and 26 Rat Traps) ..	\$8 50
Short Stop (216 Mouse Traps and 26 Rat Traps) ..	7 50

TROWELS.

Cement.	
Atkins No. 6	19 50
" No. 3	25 50
Dianston's	30%

TRUCKS.

Bag	each \$3 75
Warehouse or store,	
No. 1, each	\$24 50
No. 2, "	22 50

TUBS, WASH.

Standard, Wood.	Ex.
Nos. 3	2 1 large
Per doz. \$9 50	11 25 12 75 15 50

Galvanized.	
No. 1	2 3
Per doz.	13 75 15 95 18 65

TWINE.

White Cotton.	
Eureka, 4-ply	per lb. 30c
Jute.	
3-ply and 6-ply Bale Lots ..	22½c

VALLEY.

Formed Valley Galvanized Steel	60-5%
Milcor	Net

VISES.

No. 700, Hand,	
Inches 4½	5 5½
Dox. \$11 15	13 00 14 85
No. 701, In. 4	5 6
Dox. \$11 15	13 00 16 70
No. 1, Genuine Wentworth, Noiseless Saw....	per doz. 15 00
No. 2, Genuine Wentworth, Noiseless Saw....	per doz. 22 50
No. 3, Genuine Wentworth, Noiseless Saw....	per doz. 20 00
No. 500, All Steel Folding Saw	per doz. 15 00

WASHERS.

Standard O. G. cast iron, per lb.	3½c
Wrought steel in 5-lb. boxes, per lb.:	
In. 3/16	¼ 5/16 ¾ 1 1½
15c 14c 13c 11c 10c	
¾ ¾ ¾ 1 1	
9½c 9c 8c 8c	

WEDGES.

Ax.	per doz. Nets
Galling	per lb. Nets
Saw	per lb. 8½

WEANERS.

Fuller's, per doz. \$2 00 to \$2 50	
Tyler's Safety, per doz.	1 35 to 2 40
Carroll's, per doz. 3 00 to 3 75	
Hoosier, per doz. 3 50 to 4 60	
Shaw Perfected..	3 00 to 3 75

WEIGHTS.

Hitching	per lb. Nets
Sash—f. o. b. Chicago.	
Ton lots, per ton	\$40 00
Smaller lots, per ton....	42 50

WHEEL BARROWS.

Common Wood Tray.....	\$3 00
Steel Tray	4 50
Angle leg, garden.....	5 75

WHEELS.

Carborundum	50%
Emery	60%
Well, Ins. 8	10 12
Per doz. \$5 50	7 25 8 50
12-in. heavy holting, per doz.	\$25 00

WIRE.

Plain annealed wire, No. 8 per 100 lbs.	\$3 45
Galvanized barb wire, per 100 lbs.	4 15
Wire cloth—black painted, 12-mesh, per 100 sq. ft.	2 50
Cattle Wire—galvanized catch weight spool, per 100 lbs.	4 15
Galvanized Hog wire, 80 rod spool, per spool.....	3 85
Galvanized plain wire, No. 8, per 100 lbs.	4 00

WOOD FACES.

50% off list.

WRENCHES.

Coes Steel Handle, 6-inch....	30%
" " " 8- "	30%
" " " 10- "	30%
" " " 12- "	30%
Coes Knife-Handle, 6- "	30%
" " " 8- "	30%
" " " 10- "	30%
" " " 12- "	30%
Coes All Patterns.....	30%
Bemis & Call's:	
Adjustable S, 10% Adjustable S Pipe, 10%; Briggs' pattern	30%
Combination Bright	25%
Steel Handle Nut	30%
Combination Black	25 & 5%
Merrick Pattern	30%

Knife Handle Pattern.	
No. 43, Screw Wrench, List plus	30%
No. 60, Steel Handle.....	30%

WRINGERS.

No. 790, Guarantee, per doz. \$60 00	
No. 770, Bicycle	55 00
No. 870, Domestic ..	51 00
No. 110, Brighton ..	45 00
No. 750, Guarantee..	60 00
No. 740, Bicycle	55 00
No. 22, Pioneer	42 50
No. 2, Superb	30 00

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Lath—Expanded Metal.
Milwaukee Corrugating Co.,
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Machinery—Culvert.
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Hyfield Mfg. Co.,
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Machines—Tinsmiths'.
Bertsch & Co.,
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Kniedler, Frederick J.,
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Maplewood Machinery Co.,
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Marshalltown Mfg. Co.,
Marshalltown, Iowa
Whitney Mfg. Co., W. A.,
Rockford, Ill.

Mailing Lists.
Ross-Gould, St. Louis, Mo.

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Harrington & King Perforating
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Miters.
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Nails—Wire.
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Ornaments—Sheet Metal.
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Gerock Bros. Mfg. Co.,
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Quincy Pattern Co., Quincy, Ill.
Shaw & Son Co., The Geo. E.,
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Taft Metal Pattern & Mfg. Co.,
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Vedder Pattern Works,
Troy, N. Y.

Pipe and Fittings—Furnace.
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Excelsior Steel Furnace Co.,
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Meyer & Bro. Co., F., Peoria, Ill.
Michigan Safety Furnace Pipe
Co., Detroit, Mich.
Standard Furnace & Supply Co.,
Omaha, Neb.

Pipe and Fittings—Stove.
Hemp & Co., St. Louis, Mo.
Meyer & Bro. Co., F., Peoria, Ill.
Sullivan-Geiger Co.,
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Pipe—Conductor.
Berger Bros. Co.,
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Burton Co., W. J., Detroit, Mich.
Clark-Smith Hdw. Co., Peoria, Ill.
Dieckmann Co., Ferdinand,
Cincinnati, Ohio
Friedley-Voshardt Co.,
Chicago, Ill.

Pipe—Expanded Metal.
Hussey & Co., C. G.,
Pittsburgh, Pa.
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Polish—Metal and Stove.
Black Silk Stove Polish Co.,
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Posts—Steel Fence.
American Steel & Wire Co.,
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Punches.
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Whitney Metal Tool Co.,
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Parker Supply Co.,
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Punches—Hand.
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Parker Supply Co.,
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Quick Meal Stove Co.,
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Ranges—Gas.
Quick Meal Stove Co.,
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Rasps.
Heller Bros., Newark, N. J.

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